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JAN 5 1931

PAPER TRADE JOURNAL

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Vol. XCII JANUARY 1, 1931 No. 1

Rhinelander

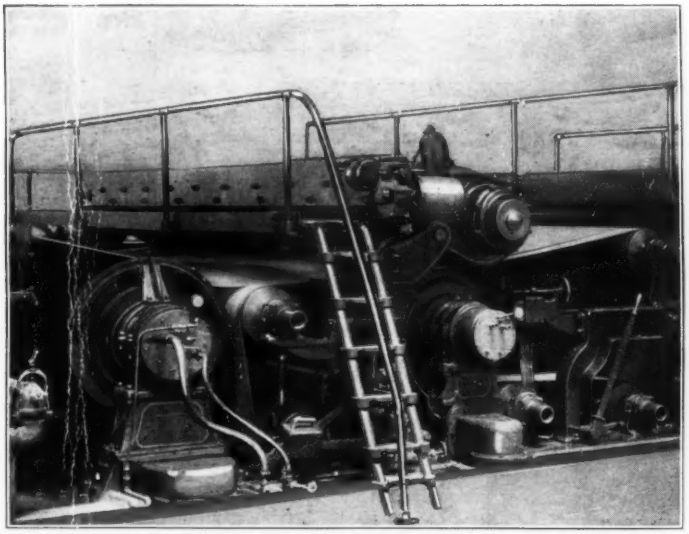
Endorses

BELOIT

SUCTION COUCH

and

SUCTION FIRST PRESS ROLL



Read this letter

"A few weeks ago we dismantled our suction couch roll, more or less out of curiosity. As you know, we carry at all times a very high vacuum of not less than 22" to 24" on this roll.

We were very pleasantly surprised to find that neither the packing nor the shell showed the slightest sign of wear after two and one half years of continuous operation. Our past experience with other makes of suction rolls has been that after this length of time a decided wear of the shell is noticeable, as well as the necessity of changing packing several times during such a period. Out of several suction rolls and suction presses of your make here at our mill we have had eminently satisfactory service in every respect. We feel the outstanding improvements you have in this roll are as follows:

(a)—Heavy duty roller bearings to maintain perfect alignment and reduce power required to drive the roll.

(b)—Small diameter journals permitting direct drive and avoiding the use of gears.

(c)—Cantilever feature on suction couch rolls for convenience and safety in changing wires.

We are pleased to be able to give you this report on our experience with your suction rolls, and it is our hope that before long we will have all of our machines equipped entirely with Beloit suction rolls and suction presses."

Very truly yours

RHINELANDER PAPER COMPANY

Folke Becker, *Manager*

Read the above letter again. Do you want further proof? Write us for details.

The *Beloit* Way is the *Modern* Way

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.

The BELOIT

A PROMISE
is Only a Promise . . . . PERFORMANCE is History!

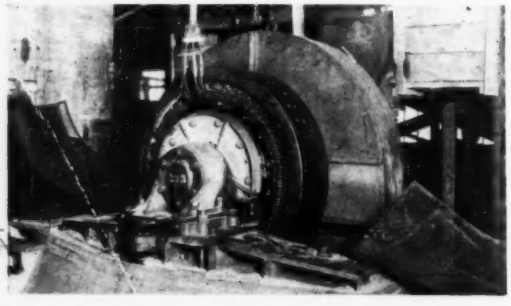
And Performance is the Basis Upon Which Eighty-three Representative Manufacturers of Rotating Electrical Equipment are Selecting SKF Ball and Roller Bearings.

Performance . . . that's it . . . performance . . . in a bearing it's the ONLY thing that counts.

On what other basis should a bearing be manufactured . . . or sold . . . or bought? On what other basis should a bearing be judged?

And so, SKF maintains its own mines from which to get the ores for its special steels . . . its own forests from which to get the charcoal for processing these steels . . . its laboratories at home and abroad . . . its numerous plants everywhere . . . all with the idea of building performance . . . and still more performance . . . into SKF Bearings.

Performance . . . dependable year in and year out performance . . . is the quality that has made SKF the selected bearing of practically every industry in the country . . . and more specifically, the selected bearing of 83 manufacturers of rotating electrical equipment. SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y.



Nothing but Performance caused the D. J. Murray Mfg. Co. to use SKF Bearings on this 150 H.P. motor driving a 96" Wood Chipper. It has been in service for years, 16 hours a day, without a bit of bearing trouble.

SKF

2632

SKF IND. INC.
1 9 3 0

Entered as second class matter March 3, 1925, at the Postoffice at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co. at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial offices: 10 E. 39th St., New York, N. Y.

What a Lubricated Packing Means to the Pump Shaft

It means no friction, and it is friction caused by a hard, unlubricated packing-bearing surface on the shaft that increases operating expense—

The following packings are not only designed to carry sufficient lubricant to keep the rod or pump shaft in a well-lubricated condition, but the several packings have lubricants especially compounded to meet the particular conditions of service specified.

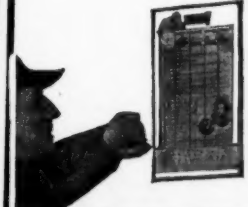
For Steam (Superheat) and Compressed Air

For Water (Hot and Cold) Calcium Brine, Centrifugal and Reciprocating Pumps.

For Caustic Soda, Acids, Alkalis.

For Gasoline, Naphtha and all Distillates of Petroleum.

Send for This Chart and Hang It Up for Reference



These packings will give long, economical service against the various fluids as stated because they carry an abundance of lubricant suited to the conditions under which they must work.

Send for free working samples. State size and service.

GREENE, TWEED & CO.

Sole Manufacturers

109 Duane St., New York

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-NINTH YEAR

Published Every Thursday by the

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THE EXTRA ADVANTAGE

BUYERS of staple products look long to find an "extra advantage"... a margin of superiority which will stretch purchasing power to its limit. Those who use E B G Liquid Chlorine find this extra advantage, in the form of honest business dealing, service from people who know what service means, cooperation.

These qualities of service do not "happen". E B G has carefully developed them, and *added* them to the steady quality of E B G Liquid Chlorine.

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Pioneer Manufacturers of Liquid Chlorine

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Liquid Chlorine

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCII, No. 1 — PAPER — Thursday, January 1, 1931

S. L. Willson Analyzes the Paper Industry

President of the American Writing Paper Co. and the American Paper and Pulp Association Views the Outlook Hopefully—Says Great Things Are Ahead for the Industry and That All Who Look Sufficiently Far Ahead May Visualize Another Period of Unusual Prosperity

HOLYOKE, Mass., December 30, 1930—The following statement regarding the business situation in the paper industry and prospective conditions was given out today by S. L. Willson, president of the American Writing Paper Company, Inc., and president of the American Paper and Pulp Association:—

The optimistic views expressed by me during the past year, have not in all cases materialized, but the courage back of that optimism has been helpful as it has enabled me to meet the ever changing conditions with a still more hopeful view of the future.

Reviewing the past year, so far as the paper industry is concerned, we find that during the first six months business was fairly good with many companies' sales and net profits even exceeding those of the unusually good first six months of 1929 During the following six months—an unprecedented slump in business was experienced, which absorbed most of the profits earned during the preceding period.

This condition has been the subject of much discussion, and I have been asked to analyse it and to express an opinion regarding it. I hesitate to do this, as opinions are today largely guesses—one may be a good one—another a bad one.

The Historical Record

First, as a matter of historical record—we find our industry the last to be affected by depression and the last to revive from one. In October 1929—general business fell over a precipice. It took a lot of paper to tell of the catastrophy—and being a catastrophy it took more than it would have taken to tell of good business news—of which at that time there was a conspicuous absence. News print contracts—advertising contracts and other forms of contractual business requiring the continuous use of paper—kept the paper industry on its feet long after many other industries had toppled over, and in that way—the paper business continued to thrive and remain fairly stable until the middle of the year. This record was simply "History repeating itself." Then contraction in the use of paper began, and during the past six months it has been a gradual decline in orders—production—inventories and prices.

There have been mills which have produced beyond the capacity of their regular customers to consume. In these cases—either inventories have been increased—or new customers have been sought and secured through cut prices—of course to the injury of some other manufacturer or the industry as a whole. Other mills have kept uniform inventories which means production has been kept in harmony with orders and consumption—a very sane and practical policy to pursue—as it stabilizes conditions for the industry.

Great Conservatism Shown

So far as merchants are concerned, great conservatism has been shown. Statistics indicate December 31st inventories lower by 15 per cent than those on January 1st, 1930—which were then in process of liquidation because of the uncertainty of the future at that time. It is fair to assume, therefore, that merchant inventories are at the lowest point possible to render good service to the trade, and the necessity for them to come into the market for replacements is quite apparent.

We have reason to expect immediate improvement over the past two months, but we have no reason to expect a revival that will equal sales of the first three months of 1929. If we reach within 10 per cent of that figure I shall feel that a material improvement shall have taken place. For the following three months and, in fact, during the balance of 1931. I look for business to be on a more even keel, with perhaps a slight improvement after the middle of the year.

We always have in business a certain number of pessimists willing to supply the "fear" in fearful. During the past year that number has been largely increased, but I believe the disease has run its course, and many of the victims of that disease are now convalescing and will soon be able to return to their business activities. I believe that over 75 per cent of business executives are fully recovered, and waiting and are prepared for the law of supply and demand to steam up, with "Demand" out in the lead.

Friendly Fellows

I have a little book entitled "Friendly Fellows" in which the following poem is printed, and its philosophy is well worth absorbing.

You can't turn OPTIMISM
Into failure if you try,
Nor Pessimism to SUCCESS—
And here's the reason why!

The Optimist just keeps his head
When things are going wrong,
He sees the good in everything
And helps it right along.

The Optimist is hopeful
In thought and in his speech,
And helps to give new courage
To all within his reach.

(Continued on page 64)

Record Water Power Development in Canada

During Past Year New Installations Brought Into Operation Totalled 397,850 h.p., Surpassing Any Previous Period—With Completion of Large Undertakings During Next Few Years More Than 1,000,000 h.p. Will Be Added to Total

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 29, 1930.—The annual review of hydro-electric progress in Canada, issued by the Department of the Interier, shows that water power development in Canada during 1930 has surpassed that at any previous period in the history of the Dominion. New installations brought into operation aggregated 397,850 h.p., bringing the total installation for the whole Dominion to 6,125,000 h.p. Construction is active also on a number of undertakings throughout the country, several of which are of outstanding magnitude, and with the completion of these during the next two or three years more than 1,500,000 h.p. will be added to the Dominion's total. Other important projects are under active investigation with development apparently imminent in several cases, while plants recently placed in operation or actively under construction are designed for future extensions as load conditions warrant.

This large programme of construction has involved a probable expenditure of $80,000,000 during the year, and will involve as much as $300,000,000 during the next two or three years. It is estimated that more than 11,000 men are at present employed on the actual construction of these various developments, while several times as many are given employment in manufacturing and other establishments providing material and equipment going into the works.

During the year the Province of Quebec led in new installations placed in operation with a total of 136,000 horsepower; followed by Quebec with 122,700; British Columbia, 71,000; Saskatchewan, 42,000; New Brunswick, 21,000; and Nova Scotia, 5,100. The Queenston plant of the Ontario Hydro-Electric Power Commission is now the largest single generating station in Canada, for during the year unit number ten of 58,000 h.p. was brought into operation, giving the station a full designed capacity of 560,000 h.p.

Mersey Paper Co. Sells Entire Output

Col C. H. L. Jones, president of the Mersey Paper Company, of Liverpool, N. S., who a few days ago returned from New York, gave out an interview in Halifax in which he remarked: "I am happy to say that our entire output for 1931 has been sold at a price that will bring a satisfactory return to the company," also announcing that while in New York he had negotiated contracts covering both five and ten year periods for the bulk of the company's entire output, thus stabilizing the production of the Mersey company for a minimum of five years, and, as regards a large percentage of the production, for ten years.

The Mersey plant is, today, equipped to turn out 250 tons of news print daily. Colonel Jones states that whilst the matter of additional machinery has been discussed no decision has been taken in view of present market conditions.

"In 1931," he said, "we expect to turn out 77,000 tons of news print, all of which is contracted for in advance and this will mean that the Mersey mill will work to capacity throughout the entire year."

In a statement in the *Chronicle*, Colonel Jones said that "considering the depression that exists in the news print business in general and the difficulty which some of the Canadian mills have in disposing of their products, I am naturally gratified that we have been so successful in securing a market for our newsprint."

Asked by the *Chronicle* how it was that with so many mills idle and clamoring for business, he was able to sell so well, Colonel Jones said that the strategic location of the Mersey mill at tidewater, so close by steamer, to New York, enables the mill to deliver news print to that great market at a price cheaper than others. He added that the price of the news print at the mill is no lower than that of competitors, but "delivered in New York it costs the consumer less."

Powell River's Expansion

The Power River Company, whose paper mill is situated eighty miles north of Vancouver, has made good progress with its new hydro-electric undertaking on Lois River, where the first unit of 24,800 h.p. under a net effective head of 375 feet is being installed. It is expected to have this ready for operation about March next, and the power will be transmitted over a 66,000-volt line, already constructed, to the pulp and paper mills of the company at Powell River. Completion of the plant with a second unit will be proceeded with during 1931.

High Falls Power Plant Completed

The Maclaren-Quebec Power Company, a subsidiary of the Maclaren Power and Paper Company, has completed the 90 h.p. initial installation of its High Falls plant on the Lievre River, Que. The ultimate development is to be 120,000 h. p. The company now proposes to construct another 120,000 h.p. plant on the Lievre River, below Buckingham.

Backus-Brooks Get Permit Extended

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 27, 1930—The Backus-Brooks paper interests have secured an extension of nine months on their water power permit to build a huge hydro-electric power project on the Cowlitz river in central Lewis county, Washington, according to official announcement coming from Olympia late in December.

The original five-year permit will expire February 23, 1931, and the extension dates from December 23, 1930. The cost of the project will be millions, although no definite figures have been stated by the promoters, who declare that they will develop a vast industrial center in the region which will use all the power which it is proposed to generate.

A considerable amount of money has already been expended by the Backus-Brooks interests in borings and other test surveys looking toward the future development.

Rainier Operations May Be Moved to Port Angeles

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 27, 1930—The Rainier Pulp and Paper Company's mill and operations at Shelton, Wash., may be moved to Port Angeles, Wash., according to persistent rumors in northwest industrial circles, due it is understood, to 18 damage suits filed against the company totaling about $1,200,000 charging that waste from the plant is destroying the oyster beds.

Indications that the rumors are taken seriously seem to be evident because mass meetings of citizens in the district are considering the possibilities of co-operating to retain the industry for Shelton and vicinity.

The Rainier Pulp and Paper Company which is owned by Zellerbach interests of San Francisco, has large holdings at Port Angeles, and the move could be made, it is pointed out, without undue complications.

"....AT LEAST 10% LONGER FELT LIFE"

"We have 12 Vickery Felt Conditioners in our various mills," writes one paper maker. "It is not necessary to remove felts for washing, or rope and wash at the machine. Our presses can be loaded to full capacity throughout the life of the felt . . . we figure conservatively that we get at least 10% longer felt life."

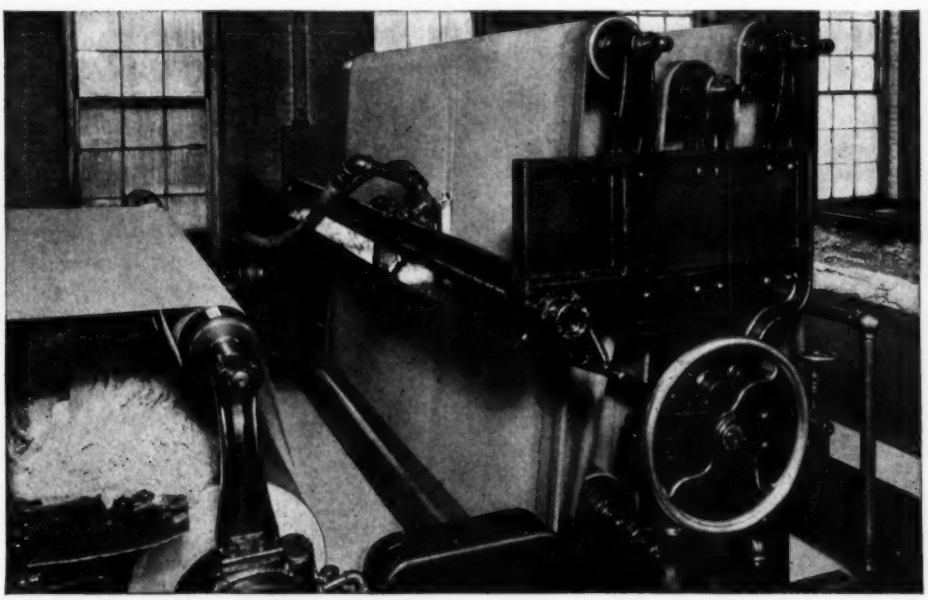
Let us prove, with a trial installation, that Vickery Felt Conditioners will give the same results in your mill. Write today.

THE VICKERY FELT CONDITIONER

BIRD MACHINERY

BIRD MACHINE COMPANY

SOUTH WALPOLE
MASSACHUSETTS



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Optimism Expressed In Chicago Paper Circles

General Buying Upturn Anticipated By Local Coarse Paper Merchants — Some Improvement Noticed In Kraft Paper Situation—Fine Paper Market Exhibiting Irregular Trend—Paper Board Division Marking Time and Hoping For Best

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 27, 1930—Now is the time when predictions are freely made on possibilities for 1931. There is a general feeling in the Chicago paper market that the new year will not be unkindly. Many of the markets are scraping bottom and, having reached that point, are evidencing signs of stabilization that augur well for the future, say reports. Chicago coarse paper jobbers, according to the Chicago Paper Association, feel that a general buying upturn is on its way and stabilization has encouraged them to stock from the proper sources for a promised early upturn. The kraft market shows signs of betterment. Fine papers continue spotty and little can be said about their future until the new year gets under way. The board market should feel the force of new uses in 1931. Right now it is marking time, working off a load of over-production and hoping for the best.

Kraft Paper and Bag Situation

An interesting discussion of the kraft paper and paper bag situation is to be found in a letter written by D. F. Peck, president of the Chicago Paper Association, to 209 members of the trade. Mr. Peck retraces the history of the now well known bag list from its publication on August 15 after which several leading merchants announced the decision that this basis price list would not permit of a proper setup in profit on small sales and on high priced bags to the the paper merchant—especially those operating in metropolitan districts where overhead costs are high. After some effort, these merchants were assured, says Mr. Peck, that the August 15 list would be changed to cover complaints. On December 2 the secretary of the Chicago Paper Association heard from the Bag Institute. They said, according to Mr. Peck, that their canvass of the United States indicated that a majority of jobbers wished no change in the list. On December 9 the Association voted unanimously not to accept the August 15 list and authorized Mr. Peck to fight for its revision upward. Mr. Peck says, "I do not aim to dictate what this list price should be nor what manufacturers should sell their bags for, but they should consider the jobber and his problems. The new discounts," he continues, "are too ridiculous for serious thought." Mr. Peck asks his 209 correspondents to cooperate in obtaining a new bag list and in the meantime refuse to buy on the August 15 list. Mr. Peck closes his interesting open letter, which he says has been invited by the action of bag manufacturers through the Institute, with an analysis of business as follows: "In reviewing 1930 I have come to the conclusion that of the major industries the paper business has been most favored and prospects are excellent for the coming year. Stocks in warehouses are low and today orders are being placed freely for shipment after the first of the year and there need be no fear for the future. Prices are very low and there is little chance of any downward tendency. Place business with those who will cooperate with you and your worries will be nil. I am glad the kraft manufacturers are holding 'their own' and not borrowing 'babies' from others."

Quality of Imported News Print

An editorial headed "News Print," appearing in the *Chicago Tribune*, is of interest to the trade. It follows: "Newspaper publishers are endeavoring in two instances to obtain a modification of government rules regarding news print in which their readers will be interested. One case is in the courts, the other is before the customs bureau of the treasury department. The quality of paper available by import for newspaper making is in question. The tariff admits standard news print free of duty. The customs bureau defines what is standard. Its definition has limited the ash content and the thickness of nondutiable paper arbitrarily and the consequence is an inferior paper. It is a purely bureaucratic dictum which puts so much inferior paper in the hands of American newspaper readers. Better paper and better printing would be available if bureaucratic government would permit it. Better readability, desired by publishers and desirable for readers would be possible if the customs bureau would revise its rulings and will be if the courts require it. The apparent purpose of the tariff law is to allow the free importation of a paper suitable for the printing of newspapers. The apparent purpose of the bureau is to prevent it, at the expense of the readers eyesight and comfort. Bureaucracy is mainly an addiction to foolishness for its own sake." The editorial, as quoted above, created some interest in the Chicago market when it appeared on December 26.

Outlook for Paper Milk Containers

Quite a bit of interest is being shown in Chicago over the possibilities of the supplanting of the glass milk bottle with the paper container. The Borden Company, large Chicago milk distributors, with branches in many parts of the United States, has reported that paper bottles are now being used rather extensively in the east. Paper bottles, according to the industry, are not so new, but they have been perfected with the Sealcones organization of New York now using a machine which takes roll of paraffined paper at one end and turns out at the other a completed, filled and sealed bottle of milk. One big hope for the paper milk bottle usage lies in the fact that the paper bottles can be filled with milk at but 1 degree above freezing—colder than is possible with glass bottles—and eliminating much of the use of ice on delivery routes. The elimination of expensive crates, breakage problems, washing equipment, bottle collections and exchanges, saving in space, sanitation are other items in favor of the paper product. The paper milk bottle also lends itself admirably to the advertising of the milk distributor and opens up a new field for the forces of advertising. When one considers the amount of milk consumed in the United States daily and then figures this usage on the basis of paper milk bottles the future of at least this end of the paper industry looks brighter, indeed.

Paper Salesmen Discuss Differentials

The Chicago Division of the Salesmen's Association of the Paper Industry held its last meeting of the year on Monday, December 22, featuring a round table discussion of differentials on carloads and less than car loads. A great deal of interest was evidenced in the program which was a continuation of the discussion on differentials begun three weeks ago. The next meeting will not be held until the first Monday of the new year. It will also feature discussions on differentials.

St. Helens Paper Co. Distributes Bonuses

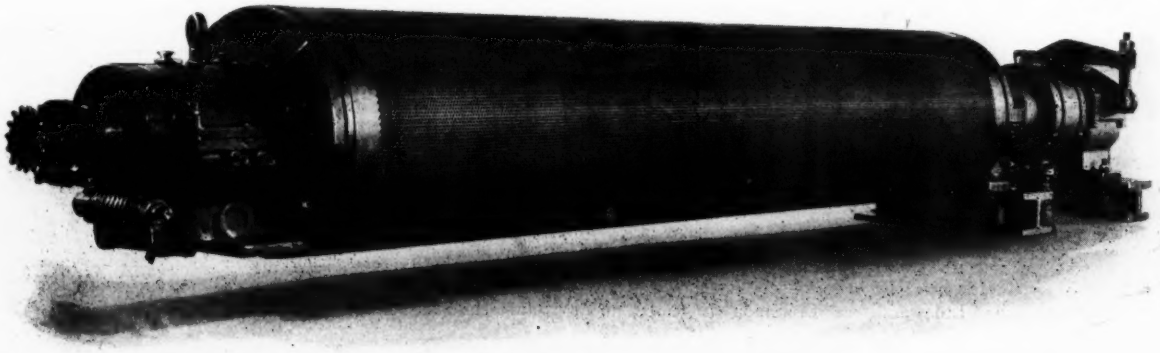
[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 27, 1930—St. Helens Pulp and Paper Company, St. Helens, Ore., distributed bonuses to about 200 employees who had been with the company more than one year, the money being paid in time for Christmas.

Pacific Coast Mill

. . . will use this Downingtown Adjustable Suction Couch Roll of the overhung, self-supporting type. It is 36" in diameter with 166" drilled face, and is arranged with rear end suction pump connection. This roll is arranged for front end adjustments of deckles, packing strips and angular position of suction box. All these adjustments can be made while running. Another feature is the ports in the end heads, through which the packing strips and deckle heads may be removed without dismantling the roll. For further information, address the Downingtown Manufacturing Co., Downingtown, Pa.

DOWNINGTON KILBERRY PATENT SUCTION ROLL



Fort Frances Pulp & Paper Appeal Allowed

Privy Council In London Reverses Judgment of Ontario Supreme Court In Favor of Spanish River Pulp & Paper Mills—Dispute Was Over Alleged Failure of Spanish River to Supply Full Share of News Print Allotments During World War

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 29, 1930—Reversing a judgment of the Ontario courts, the Judicial Committee of the Privy Council in London has allowed the appeal of the Fort Frances Pulp and Paper Company, Ltd., from a decision of the Ontario Supreme Court in favor of the Spanish River Pulp and Paper Mills, some time ago taken over by the Abitibi Power and Paper Company. The dispute was over the liability of the Spanish River company to appelants in respect to their alleged failure to supply a full share of the news print allotments during the war. Their Lordships consider an appropriate order in this case would be as follows:

1. A declaration that such of the respondents as supplied less than their proper share of news print to Canadian publishers between January and September, 1918, are liable in terms of the differential clause contained in the controllers orders in respect of that period to recoup to appelants the sums lost to appelants by reason of their own excess supplies.

2. An account in accord with such declaration—the accounting parties on the taking of such account being at liberty to bring in by way of set-off, but not otherwise, any sums for which appelants remain accountable to them or to any of them in respect of over-payments.

Abitibi Company Promotions

R. T. Steedman, who has been sulphite superintendent at the Iroquois Falls plant of the Abitibi Power and Paper Company, for a number of years, has been promoted to be assistant manager of the Smooth Rock Fibre Division of the same company, at Smooth Rock Falls. Mr. Steedman has devoted great energy over a considerable period of time to a study of the sulphite processes and has taken an active part in the development of such processes in recent years. In conformity with the Abitibi company's general policy of allocating promotion within its own ranks, J. S. Brown, who is assistant sulphite superintendent at Iroquois Falls, has been promoted to be sulphite superintendent at the Falls.

Alliance Footballers Hold Annual Gathering

The annual banquet of the Alliance Paper Mills' Football Club was held in St. Joseph's Hall, Merritton, Ont., when a large number of the paper making sportsmen gathered in an interesting evening. George W. Pauline, managing director of the company, was in the chair and among those supporting him at the head table were L. E. Fleck, assistant managing director; J. R. Leslie, secretary-treasurer, and A. E. H. Fair, general superintendent, together with H. E. Karborg, superintendent of the sulphite plant. The cups won by the company's fast football team during the season were presented in the course of the evening. The team has won for the second year in succession the cup presented for competition among the football clubs of the district, and, should it win again next year, the cup will become its property. The trophy was handed over by Art. Watson, president of the club, to Mr. Pauline, who received it on behalf of the company. Following the dinner and presentation of cups, an excellent musical program was rendered by members of the team and other employees of Alliance. Some capital boxing bouts were also on the bill.

Employees Co-operate With Boxboard Co.

To bring home the lesson of buying produced-in-Canada goods, Dominion Boxboards, Ltd., and the Dominion Envelope and Carton Company, Ltd., two associated Toronto industries. with branch plants at Montreal, Winnipeg, and Edmonton, have in operation a novel plan. They induced their employees to pledge themselves and their families to buy goods made in the Dominion and put up in Canadian made packages manufactured from Canadian boxboard. When John Smith reads and signs a pledge card he has embedded in his mind the fundamental produced-in-Canada argument, that what helps the country helps him. He knows that when he is working on cartons for a corn flake company, for instance, he has that job because other Canadians are buying the product, and he sees why that brand should be served at his breakfast table in preference to some imported food. These pledge cards, when signed by the employees, are mailed by the company to their home address. The object of this procedure is that the cards should be hung in the kitchens of employees homes as perpetual reminders to the household purchasing agents.

The company did not stop with this. To let employees know what goods fulfilled the conditions of the pledge they arranged two displays of cartons made for various Canadian companies. One display was placed in the carton plant and one in the board mill. Above these displays are hung large posters drawing attention to the wisdom of buying goods of home manufacture, while to keep the thought continually in mind a series of reminder cards are sent out. These were first enclosed in the pay envelopes, but now the operators are paid by check, they are mailed to the homes each week. As new employees are taken on by the company they are given pledge cards to sign and the pledge is renewed every three months. E. Newell, president of the company, says: "We have around 615 employees in Toronto, Winnipeg and Edmonton and we request each employee to sign a pledge card every three months. We carry this pledge out in our own business and do not buy anything outside Canada that can be purchased here. We are always willing to pay a premium as a matter of fact."

Notes and Jottings of The Trade

To obviate the possibility of a power shortage in the North Bay district, the Hydro-Electric Power Commission has made arrangements with the Abitibi Power and Paper Company for a large supply of electrical power from the company's plant at Sturgeon Falls. The route has been located, four camps have been established and 150 men began work on the transmission line a few days ago.

Erection of a proposed new factory in Hamilton, Ont., for Canadian Corrugating and Container Company, has been deferred for the present. The company's existing property has been taken over by a railway company.

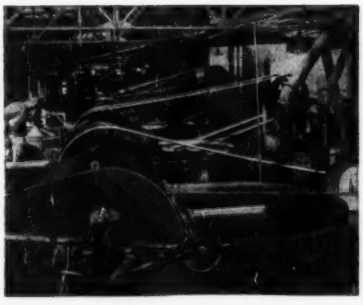
Directors of the Interlake Tissue Mills Company, Ltd., Merritton, Ont., met in Toronto a few days ago and declared the usual quarterly dividend.

Harry Ramsay, formerly of Ritchie & Ramsey, coated paper company at Geargetown, Ont., and now manager for the Howard Smith Paper Company, at Winnipeg, spent Christmas with friends in Toronto.

The death took place a few days ago of William Scott, vice-president of Gummed Paper Ltd., Brampton, Ont. The deceased was well known in paper circles. His funeral was attended by H. V. Hodder, secretary of the Canadian Paper Box Manufacturers' Association, on behalf of the organization.

This newest Goodyear Belt saves trouble on *beaters*

The Goodyear Thor Belt—seamless*, a new construction for 1931—represents a radical improvement in belting for paper-making machinery. On Beaters, Pumps, Digesters, and Cone-Pulley Drives — practically any place in the mill—it will save costs and trouble. The edges are protected by a splitless and seamless envelope—it is guarded from fraying at the edges and from tearing in the center. It is extremely strong at the fasteners—made of silver duck—heavily cushioned between plies with rubber. It is a rugged new Goodyear belt to keep your machinery operating at top efficiency.



Goodyear Thor Belting, seamless, is applied to your work by the G.T.M.—Goodyear Technical Man. He is an expert in paper mill belting. He fits Goodyear Mechanical Rubber Goods—Hose, Molded Rubber Goods, and Packing—to the needs of your own production and machinery. He saves time and money. To see the G.T.M., just write to Goodyear, Akron, Ohio, or Los Angeles, California.

** Goodyear Thor Belting, seamless, is made in widths up to and including 16"—Thor quality of special construction is available for larger sizes*

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

Boston Paper Market Holding Up Fairly Well

Large Orders Reported Placed For Ledger Paper and Other Fine Paper Grades—While Wrapping Paper Is Only Moderately Active At Present, Outlook For Coming Year Is Favorable—Specialties Continue to Move In Good Volume

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 29, 1930—The wholesale paper market has held its own fairly well during the last week, in spite of the Christmas holidays. A well known paper merchant feels that there is a possibility for good business after January 1, substantial both in size and number of orders. He also feels that drastic price cutting is highly inadvisable and much to be deplored. He hopes that the trade generally will desist from what he regards as an unfair and demoralizing practice. Some large orders have been placed during the week for ledger paper and other lines for office purposes for January delivery. These sales have been made principally to big concerns, such as textile and rubber manufacturing plants. Wrapping paper has averaged no better than fair, but propects are favorable for 1931. Specialties have been moving well. A big shoe factory has purchased a very sizeable amount of waxed paper for shoe linings. The box board market is virtually unchanged, both in volume of sales and in values.

The paper stock situation is practically unchanged. Prices are largely nominal. Many of the consumer mills were closed during Christmas week. Some concerns which have placed orders with paper stock suppliers here for years have not repeated this year. It is thought that these concerns probably have enough supplies on hand to carry them into 1931. Waste paper has become so plentiful that it is hardly profitable at present prices for dealers to pay producers, such as department stores, office buildings, etc., for this commodity, haul it away and prepare it for the market. Last week a contract was awarded for the construction of a brick paper burner at 440 Brookline avenue for the City of Boston School Department.

News of the Trade

It is expected that Frank Floyd, president, and K. S. Warner, of the National Paper Trade Association of the United States will be present at the annual meeting and election of officers of the New England Paper Merchants Association at the Harvard Club of Boston, Thursday evening, January 15.

The Christmas party of the D. F. Munroe Company took place Wednesday afternoon at the office where all enjoyed themselves to the utmost. Floyd Blackman was Santa Claus, distributing from the tree the "real" gifts and "joke" gifts. Miss Anna Scully and James F. Cooper were elected to the 100 per cent Club, qualifying for membership by being faithful throughout the year and excelling in their work. Entertainment was provided for all.

The Storrs & Bement Company gave a Christmas party at their office, all having an exceedingly good time. President William N. Stetson gave a talk. Fred Rose, as Santa Claus, dispensed gifts from the tree, many of which caused much merriment. Refreshments, including candy and cigars, were served.

At a recent meeting in a series being held by Carter Rice & Co. Corp., Harry Ellis, merchandising man, in charge of wrapping papers, twine, etc., noted a number of the salient features and selling points of some of the various items under his jurisdiction. He stressed particularly the high percentage of profit which this merchandise carries as compared to some grades in the fine paper division. These meetings are proving very helpful to the sales force of the company in familiarizing them with more definite information in regard to the commodities mentioned.

The Carter Rice Company is to hold a meeting early in January for discussion of Hammermill cover, made by the Hammermill Paper Company, Erie, Pa. Gilbert P. Bothwell, sales promotion manager, will be present to talk on the new colors and finishes in which the line can now be obtained.

Christmas Greetings and colors are among the features of the December number of "How," the house organ of Tileston & Hollingsworth, edited by A. V. Howland. The issue contains interesting and instructive articles and an announcement that Laurance B. Siegfried, editor of "The American Printer," will make a review and analysis of the Tileston & Hollingsworth Calendar at the Boston Chamber of Commerce, January 22, under the auspices of the Boston Club of Printing House Craftsmen. Invitations have been extended to the Boston Typothetae Board of Trade, the Advertising Club of Boston and the Society of Printers. The printing students of the Wentworth Institute and Roxbury Memorial School will attend as specially invited guests. The calendar is to be analyzed in Portland, January 23, at the Hotel Eastland, under the auspices of the Maine Typothetae, and in Providence, R. I., February 8, under the auspices of the Providence Club of Printing House Craftsmen. The number is printed on Crinoline wove plate, white and Milton cover, white.

Members of the Boston paper trade have received Christmas Greetings from the "Tree-To-Trade" family. "Tree-To-Trade" is a monthly magazine published by the Racquette River Paper Company, Potsdam, N. Y., and edited by William Feather. The December issue is printed on Royal Vellum, of apple green cover stock, and white editorial stock.

Samples of Sea Foam Bond, made by the Brownville Paper Company, Brownville, N. Y., have been received by members of the Boston paper trade. This paper, on which fourteen carbon copies can be made, is particularly adapted for typewriter use. It is of light weight, for air mail, and stands up easily in files. The paper is made in seven colors and the six standard sizes and second sheet sizes.

T. C. Greene, of the T. C. Greene Paper Company, 10 High street, and Mrs Greene, have been sending to their friends a joyful Christmas message, announcing the arrival of Thomas Casey Greene, Jr., who was born December 16. The appropriately decorated announcement, written by Mrs. Greene, is in three four-line verses, under the caption of "The Season's Greetings from Anne and Tommy Greene."

Poinier & Carmer Company, box board dealers, have removed from 683 Atlantic avenue to 665 Atlantic avenue, Room 534.

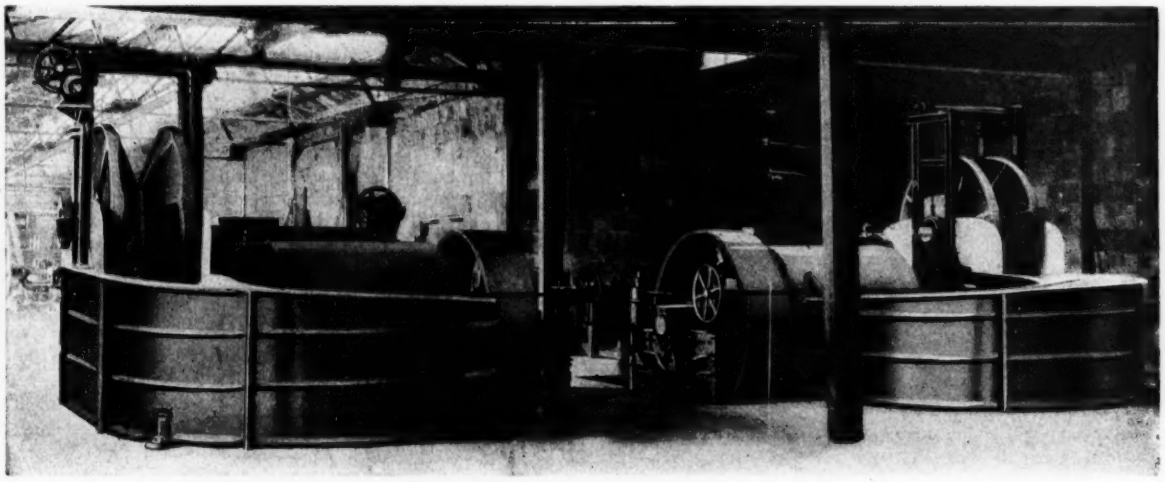
H. C. Davis, president of the Davis Paper Company, West Hopkinston, N. H., has gone to Florida for the winter.

Work of Safety Schools

Two members of the Wisconsin Industrial Commission, Fred M. Wilcox and Voyta Wrabetz, gave addresses during the past week at safety schools, the former at Wisconsin Rapids and the latter at Rhinelander. Mr. Wilcox declared that there were 22,630 industrial accidents during the last year in Wisconsin in which men were idle for a week or more, causing an outlay of $6,000,000. Mr. Wrabetz made the point that only 14 per cent of the accidents are caused by unguarded machinery, and the other 86 per cent elsewhere. The final safety meeting at Wisconsin Rapids will be a dinner, December 23, at which J. J. Plzak, safety engineer of the Consolidated Water Power and Paper Company will be toastmaster. Elwood T. Bailey, of Los Angeles, Cal., will be the speaker.

. . . . . *let us help you solve*

YOUR BEATER PROBLEMS



We cheerfully welcome the opportunity to help you solve any beater problems you might have.

On our technical staff we have practical engineers who have had intimate contact with hundreds of beating problems during the past twenty to thirty years. They have amassed a wealth of data and experience which enables them to make recommendations and offer suggestions which may be of inestimable benefit to you.

Now—at the beginning of the year—is a specially good time to check up on your beaters. Get your costs. Compare your beating time, amount of stock, circulation, horsepower, hydration and maintenance with the results being obtained by Holland and High Speed Beaters built by Valley.

Let us send a "Valley" representative to talk to you about your beating operations. He will not be a mere salesman. He will be a highly versed technical paper man who can talk intelligently and helpfully to you about your production problems. Address your inquiry to the Valley Iron Works Co., Appleton, Wis.

VALLEY
Beater Equipment
includes:

High Speed
Holland
Niagara
Breaker
and
Laboratory
Beaters
and
Washers

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

Paper Merchants Stocks Low in Philadelphia

Clearing of Warehouse Accumulations Was Fairly Well Effected By Last Minute Rush of Holiday Orders—Strenuous Efforts Being Made to Stabilize Wrapping Paper Prices—Fine Paper Offerings Ample For Current Requirements

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 29, 1930—While the last few days have been given over to inventory of stocks that were left over from holiday trading there has been satisfactory accounting of demands made in the earlier days of the week when last minute rush consumed a good volume of paper of all description. Christmas gave the dealers a last opportunity to wipe out heavy hold overs. This clearing of warehouses was fairly well effected. The year generally has been an unsatisfactory one. There was a much disturbed price situation, which in the coming year will be subjected to remedial measures, according to the Philadelphia Paper Trade Association and those members outside its ranks who have combined to remedy this evil practice. In the late year the association determined to promote more orderly trading in the paper market to pave the way for profitable business in the new year and already the reforms that are to take place have been well grounded in the combined efforts of all to promote this common interest.

The fine paper activity in the late year was more restricted and there appears to be a good supply held over from the old stocking that will meet requirements for the early months of the 1931 season. But the wrapping paper trade will be in the market for many lines that met volume buying in the last month. These include, in addition to wrapping papers, such lines as corrugated rolls and containers, tissues, grease proof and waxed papers, glassines, boxes, fancy wraps, clothing containers and certain lines of bags which in the rush of holiday buying were raised 10 per cent.

Many Removals In The Past Year

Shifting of the paper centers and the removal of paper houses to a more centralized location was effected in the late year. The Terminal Commerce Building, which was completed in October, was the chief focus point for the removal of paper concerns. That huge building with its combined warehouses, shipping terminals along the railroads, its attached garage that accommodates more than seven hundred cars and trucks and its attractive sales and executive offices in close proximity to the city business center, now houses a large percentage of the Philadelphia paper mill representatives, paper firms and converters. These firms now in the new quarters number old established houses like the D. L. Ward Company, Charles Beck Paper Company and Charles Beck Machine Company, Eastern Paper Company, Union Bag and Paper Company, Royal-Kendig Company and E. L. Richards, representing the Buffalo Envelope Company, Safepack Mills, and Shellmar Products Company. Other changes are proposed for the coming year.

Christmastide Celebrations

Though the spirit of business has been low in the past year there was no dampening of the holiday spirits in the Philadelphia paper industry as the heads of firms gave greater zest to promoting the merry Yuletide festivities for employees, to offset the depression.

Paper and Twine Merchants Play Santa

Instead of the usual holiday feasting confined to members only, this year, the Philadelphia Paper and Cordage Association made Christmas merry for a group of 24 children of the poor, proteges of the Salvation Army. With the officers of the Army present, the 24 youngsters were entertained at the Adelphia Hotel with turkey dinner, candy, toys, and each presented with a sweater—all being taken from a Christmas tree erected by the association for the occasion. President George K. Hooper presided and extended the season's greetings, and with the other two associates on the entertainment committee perfected the program. Those who joined with President Hooper in the program were John J. Birle, Jr., of the Forest Products Company, chairman; and William V. Edkins, head of the Keystone Cordage Company.

Paper and Cordage Association Elects Officers

Following the service of the Christmas dinner at the Adelphia Hotel, officers for the coming year were elected as follows:—president, William V. Edkins, Keystone Cordage Company; vice-president, Stanleigh C. Brower, J. L. N. Smythe Company; secretary, Harold Newell, American Manufacturing Company and treasurer, Charles Ryan, of Moore & Co. With 45 associates present at the dinner there was a full representation of the trade allies in the mill and wholesale paper division of the industry. It was announced that there will be held on February 21 a special social gathering in the annual dinner-dance to which will be invited the fair sex.

Benjamin C. Betner Co. Has Christmas Frolic

With 100 employees of the Benjamin C. Betner Company, bag manufacturers, whose plants are at Devon, Pa., joining in the annual Christmas gathering, there was extended to the staff the season's greetings and the practical appreciation of the firm in gifts of cash ranging in scale from $2 to $10 according to length of services. A huge Christmas tree was erected in the new addition to the bag plant at Devon and from this the president of the firm, Benjamin C. Betner, distributed presents, while the circle of employees enjoyed the dinner served beneath the emblem of the Yuletide. Following the dinner there was dancing, accompanied by a professional orchestra on the main floor, and entertainment in vaudeville and magic by a noted magician. The entertainment on Christmas Eve was made more interesting to the workers in the distribution of prizes from a drawing which brought much fun in the humorous import of the packets that were untied with mirthful enthusiasm and smiles as the contents were revealed. These were augmented with many attractive and useful prizes. Vice-President and Treasurer Jacob C. Fisher, Vice-President and Secretary Walter E. Roberts, and Superintendent August Bechmann, also assisted in extending the hospitality of the firm.

Opens Atlanta Office

An additional office has been acquired by Thomas M. Royal & Co., in Atlanta, Ga. The new offices for the sale of cellophane and a general line of bags, made by this noted local manufacturer, will take care of the growing distribution in the Far South and will be located at 144 Spring street, N. W. Atlanta, with J. Evans Reese as manager. Mr. Reese has long been linked with the bag trade of the territory.

Thomas M. Royal & Company Celebrates

Another prominent bag manufacturing firm to extend the season's cheer was Thomas M. Royal & Co. This year the workers were participants in the happiness of the firm over the

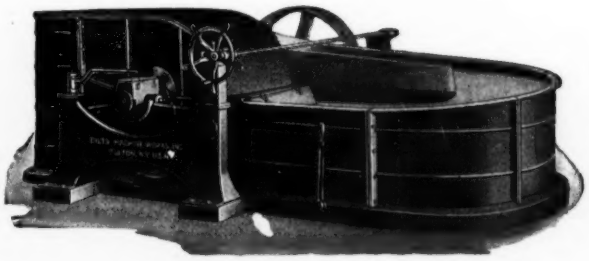
ASK US ——

Why not let our engineers study your Beater Room records and possible needs? Let them make suggestions and recommendations. It is more than likely that they can show how you can cut costs, increase your production and improve the quality of your paper.

Perhaps your Beater Room is operating efficiently now, but a careful analysis made by our engineers, without obligation to you, might show how it could be operated with even greater efficiency and economy.

You can't afford to be satisfied with anything but the best.

Take advantage of our sixty-two years' experience with Beaters and Beater Room problems. Ask us. We know Beaters.



Gentlemen:

Without obligating ourselves, we would like to discuss with your representatives certain details pertaining to our Beater Room.

Company Name .....

Address ..... **By** .....

Dilts

MACHINE WORKS Inc. FULTON, N.Y.

"Your Paper Is Made in Your Beaters"

splendid increase in business, which showed a gain of half a million dollars. In the extensive factory conducted by the company, there was placed a large tree around which all rallied in the merriment of the holidays, and beneath which was spread the dinner table with several hundred workers assembled and enjoying turkey and other seasonal good things. Following the dinner there was dancing and the distribution of substantial bonuses to the sales and office staff by Vice-President Gordon H. Friend. President Thomas M. Royal joined with the staff in the extension of the firm's greetings and good cheer.

Detroit Office To Follow

Following the establishment of a southern sales office Thomas M. Royal & Co. will open a Detroit, Mich. sales division, announcement to be made later of the location and manager.

Sabin Robbins Paper Co. Opens Baltimore Branch

With the new year there will be in full swing a new branch to take care of sales and shipments below the Mason and Dixon Line, for the Sabine Robbins Paper Company, with supervision and warehousing allocated to the Philadelphia headquarters at 1028 North Delaware avenue, under management of H. C. Riley. The Baltimore offices will be under the management of Edward McGough.

Union Bag & Paper Corp. To Move

Philadelphia offices of the Union Bag and Paper Corporation will after January 1 be removed to the new location in the Terminal Commerce Building, at 401 North Broad street. The local offices now in the Drexel Building will be located on the 10th floor in Room 1016, where William C. Mansfield, Quaker City sales manager, will continue to conduct the local executive and sales division.

Penn Card & Paper Co. To Change Quarters

With completion of remodeling of the new building just acquired by the Penn Card and Paper Company, at 410-416 Race street, in the new year the Penn Card and Paper Company will remove its fine paper and cutting departments, with warehouse and sales offices. The building will be completed in February when removal will be effective. The building is being remodeled into a modern paper structure with a large garage in the rear for accommodation of the patrons of the firm who will have ample parking space in the central city section of the city and in vicinity of the Philadelphia-Camden Bridge for those customers who come across the Delaware. Fire proof shelving and furniture will be installed, with a larger cutting equipment for converting purposes. The firm has purchased the building, a five-story structure, to be devoted to its own uses and will combine all departments, including the warehouses, now located in Bread street apart from sales and executive offices.

Trade Condolence For President of Scott Paper Co.

Trade condolence has been extended to Thomas McCabe, president of the Scott Paper Company, of Chester, Pa., on the recent demise of his father, Williams Robbins McCabe, who passed away suddenly in the early days of December at his home in Selbyville, Del. The elder McCabe was 72 years of age at the time of his death. He was a former Speaker of the Delaware House of Representatives, and served as the first Democrat from his section in thirty years. He was also State Insurance and Banking Commissioner and member of the staff of former Governor Biggs of Delaware. He founded the Selbyville Bank in 1903, serving as its first president.

Scott Paper Co. Earnings

The consolidated statement of the Scott Paper Company and subsidiaries, as of September 30, shows total assets of $8,002,344, comparing with $7,582,299 on December 31, 1929, and total surplus of $3,968,160, against $3,527,661. Current assets amounted to $2,049,778, and current liabilities, $578,996, comparing with $1,553,831 and $634,000, respectively, on December 31, 1929.

President George W. Ward, of the D. L. Ward Paper Company, Terminal Commerce Building, sails for Europe on January 6, leaving New York on the steamer *Resolute*, for the Mediterranean port of Nice in Southern France. He will return sometime during the latter part of February for the Paper Trade Convention in New York.

C. W. Dearden Resigns

[FROM OUR REGULAR CORRESPONDENT]

HARTFORD, Conn., December 29, 1930.—C. W. Dearden has just resigned as secretary and sales manager of the Rourke-Eno Paper Co., Hartford. Mr. Dearden was in charge of the printing, advertising and announcement papers for the last five years.

During his connection with the Rourke-Eno Company this organization has assumed the leadership of the fine paper field in Connecticut. This company has established an enviable reputation of real paper service among the printers, designers, advertising agencies and advertisers. As a matter of fact their success is an excellent example of what may be accomplished through offering the right kind of papers with the right kind of sales service. Originally Rourke-Eno Paper Company were known largely as dealers in wrapping paper and as distributors of Hammermill products, Certificate Bond, ledgers, index bristols and blanks.

Mr. Dearden, previous to his connection with the Rourke-Eno Company, was for nearly twenty-five years advertising manager and sales promotion manager of the Strathmore Paper Company and he put into effect in his later connection the experience gained with the progressive Strathmore organization. Backed whole heartedly by the finances and co-operation of W. H. Rourke, Mr. Dearden was shortly able to secure such mill lines as Strathmore, American Writing, Champion, Advertisers, Old Colony Envelope Company and others and with proper sales organizations and local advertising soon added to the sales of the Rourke-Eno Company and, in addition, as indicated above, began building the present acknowledged position as leaders in the fine paper field in Connecticut. Previous to Mr. Dearden assuming charge of the wrapping paper sales represented the majority of the total business. The position is now reversed with the fine papers far in the lead.

Wednesday afternoon, the day before Christmas, when Mr. Dearden severed his connection, the members of the Rourke-Eno organization, as a token of their regards and well wishes, presented him with a black seal leather brief case and a silver cocktail shaker with tray, both of which Mr. Dearden expects to use to good advantage.

Mr. Dearden has two or three proposals in mind, but is not expecting to definitely locate for several weeks.

Improved Michigan Inside Paper Mill Pipe

Toncan Wood Pipe is a new inside paper mill pipe, manufactured by the Michigan Pipe Company, of Bay City, Mich., which is arousing much interest in the paper industry. The exterior is constructed of light weight solid metal shell with flange ends, A.S.M.E. drilling, while the interior is constructed of smoothly machined clear Douglas fir staves with longitudinal tongue and groove joints joined tightly installed under heavy pressure. Inside diameter of wood shell determines diameter of pipe, same as ordinary construction. Wood shell thickness 1 inch.

The following advantages are claimed for the Toncan Wood Pipe: Long Life; Reasonable cost; Convenient installation; A.S.M.E. standard flanged joints; Convenient method for connecting with any bolt circle; Exact length lines in sections up to 24 feet long; Flanged joints withstanding end thrusts; No leakage—All tubes tested for pressure and leakage before lining; Light in weight; No specks—No rust—No corrosion; Suitable for suction as well as discharge lines.

The
BAGLEY & SEWALL Co.
builders of the world's largest and fastest paper machines, is licensed, equipped and prepared to build and install the
MINTON VACUUM DRYER
with the adequate resources and facilities and thorough understanding born of over a century's intimate experience with pulp and paper maker's requirements.
Designed and Built by
THE BAGLEY & SEWALL CO.
Watertown, N.Y. U.S.A.

Glazed and Fancy Paper Manufacturers Adopt Trade Practices

Leonard I. Houghton secretary of the Glazed and Fancy Paper Manufacturers Association, 146 Chestnut street Springfield, Mass., has sent out notices that the association has agreed upon trade practices as follows:—

The following trade practices have been agreed upon:

1. To *wind all* glazed and fancy *paper coated side out.*
2. To use 5"×8" as the standard size for *sample books.*
3. *Ream sizes and Pricing.*
   - A. To use for basic pricing unit—ream (500), 20×26 inches.
   - B. To bill in reams (500) 20 inches by the width of the roll; if in sheets, actual sheet size.
   - C. To show price conversion on the bill when the paper is other than 20×26 inches.

Result of Much Study

The above agreements are the result of considerable time, effort, and study. For several years it has been in the minds of the officers of the Glazed and Fancy Paper Manufacturers Association and the National Paper Box Manufacturers Association that there should be more cooperation in order to simplify some things and in order to remedy some difficulties. During the past year a Conference Committee was appointed by each association. These two committees held a meeting in October; the directors of the National Paper Box Manufacturers Association acted on the report of their committee at a recent meeting; since then the Glazed and Fancy Paper Manufacturers Association have adopted the above suggestions concerning trade practices.

Item No. 1

Item No. 1 makes it standard practice to wind all papers coated side out. The idea is to help prevent curling. It is not thought that this practice will entirely cure curling, it is simply one thing which the manufacturer can do to assist the box manufacturer to prevent curling. The joint Conference Committees made this recommendation and it was approved by their association directors. The Glazed and Fancy Paper Manufacturers Association, on December 3, voted to adopt the recommendation. It is understood that it will take some time before all our papers will be wound in this manner because some are already in finished stock wound with the coated side in. We expect cooperation from our customers in this matter, understanding that they can use the paper wound either way and that they will give specific instructions if they prefer rolls to be wound coated side in. Until we have all had time to get this practice in complete operation, it will be well to have a definite understanding about this in connection with each order. After July 1, 1931, it should be common practice to ship all orders wound coated side out unless specifications are otherwise. From now on current production should be wound coated side out unless otherwise specified.

Item No. 2

Item No. 2 concerns sample books. The adoption of a standard size has been discussed for years. At present sample books for our papers are not at all standardized, different companies are using all manner of different sizes. The customer has extreme difficulty in trying to file these sample books. The adopted size of 5×8 inches will fit a standard card file and will also fit the drawers of modern desks. If desired, these sample books can be filed in the regular letter size filing cabinets. It is understood that this size applies to sample books and does not apply to special samples used for advertising purposes.

Item No. 3

Item No. 3 should clear up a great deal of confusion. For years it was customary to use 20×24 inches as the basic size for reams. The 500 instead of 480 sheet ream is most commonly used in this country for our papers. Several years ago an attempt was made to standardize on 25×40 inches, 1,000 sheet unit. This attempt was unsuccessful. The unit size 20×25 inches was also recommended by the box manufacturers because it gives 500 square inches per sheet, which seems to indicate an easier basis for conversion. At the present time the 26 inch roll is more commonly used than any other size, and 20×26 inches is more commonly used as the basic size for price. Because of these facts 20×26 inches was adopted as most practical and least confusing. The understanding now is that we will bill our papers in the actual size furnished, that price quotations will be uniformly for the 20×26 inch (500) ream, and that the bill will show the 20×26 price together with the price conversion which develops the ream price for paper in other sizes.

Other Matters Discussed

The Conference Committees have discussed other matters. The box manufacturers have made two suggestions which they want passed on to the paper manufacturers.

1. That sample books of standard lines be issued annually on or about November 1st instead of at all times of the year. This date is just after the peak of their business and is their best time to consider new papers. They could keep their files of samples clean of old items easier if they got sample books regularly at the suggested time.
2. Sample work sheets should be labeled or otherwise marked to show their identity. It is very discouraging to make up a sample box and then discover that the identity of the paper is unknown.

Standard of Papers

Other matters discussed by the Conference Committees involved quality standards of our papers. These are our problems and this Association has voted to get in touch with the Bureau of Standards as an initial step. Included are the following:

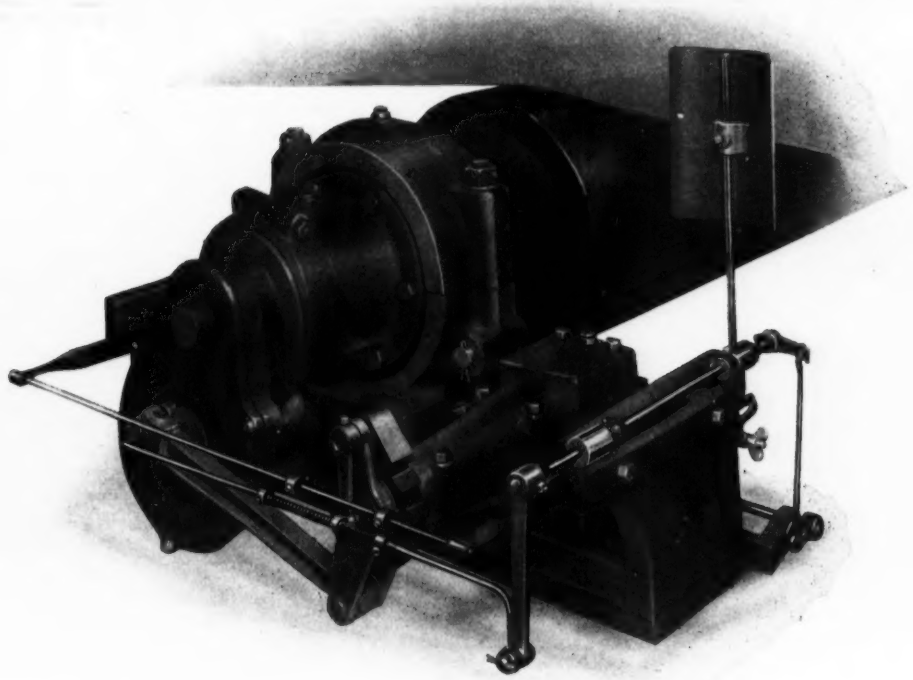
1. Body stocks for different uses.
2. Fading standards.
3. Tarnishing standards.
4. Prevention of checking.
5. Tensile strength requirements and standards.
6. Color variation standards.
7. Variation of embossing depth.

To Meet Again in January

Another meeting of the two Conference Committees is contemplated early in January. Sugestions from the paper manufacturers will be in order at this meeting. If you have any suggestion, please send it to this Association at once.

The Glazed and Fancy Paper Manufacturers Association Conference Committee is as follows: Chairman, John D. Shuart, Springfield Glazed Paper Co.; R. N. Fowler, Hampden Glazed Paper and Card Company; E. C. Smith, Nashua Gummed and Coated Paper Company.

The National Paper Box Manufacturers Association Conference Committee consists of: Chairman, Joseph H. Perry, Cambridge Paper Box Company, E. E. Brooks, Dennison Manufacturing Company, E. E. Fairchild, E. E. Fairchild Corporation, Howard P. Beckett, Association Commissioner.



A Felt Guide for High Speeds

Companion to the ball bearing, high speed M & W Automatic Wire Guide, illustrated last week, is this ball bearing, high speed Automatic Felt Guide. Both machines are designed for the stiffest modern requirements on wide, fast-running paper machines.

The gearing that skews the guide roll is driven by the roll itself, through a pawl and ratchet controlled by the light fender brushing the edge of the felt. A slight sidewise creep of the felt either way causes the pawl to engage the ratchet wheel. Reducing gearing between the roll and pawl prevents hunting at high speeds.

The value of the product of a modern paper mill calls for adequate safeguards during manufacture. M & W Automatic Wire Guides and Felt Guides repay their cost many times in greater reliability of operation.

New Bulletin just issued tells all about M & W Automatic Wire Guides and Felt Guides. Shall we send a copy?

THE MOORE & WHITE COMPANY

Established 1885

15th ST. & LEHIGH AVE. PHILADELPHIA, PA.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Green Bay, Wis.—The Northern Paper Mills, Day street, have broken ground for proposed new addition to their mill, consisting of a two-story unit, 32 x 106 feet, designed for chemical service, reported to cost over $70,000, with equipment. Superstructure will soon be placed under way. It is reported that other buildings will be erected at a later date. H. W. Gochnauer is plant engineer, in charge.

Everett, Wash.—The Puget Sound Pulp and Timber Company, Everett, has arranged for an increase in capital from 175,000 to 423,076 shares of stock, no par value, portion of proceeds to be used for general expansion in operations.

Childs, Md.—The Maryland Paper Board Company will expend close to $100,000, in remodeling, improving and equipping the former local mill of the Marley Paper Manufacturing Company, recently acquired. The property was secured for a stated consideration of $84,500, several weeks ago, when the Maryland company was organized for that purpose. It is expected to give employment to an initial working force of over 100 persons when the plant is placed in service, now scheduled for early in February. Walter G. Leimbach, 7 St. Paul street, Baltimore, Md., is one of the officials of the new company.

Potsdam, N. Y.—The Unity Paper Corporation has been organized under state laws with a capital of $100,000, to take over and succeed to the Unity Paper Mills, now in receivership. The new organization is said to be planning extensive operations at the plant, which is equipped for the production of coated papers. Incorporators of the new company include Barnard Wade, heretofore acting as one of the receivers, Harry M. Ingram and Robert H. Bryns, all of Potsdam.

Hoboken, N. J.—The Gatti Paper Stock Corporation, 13th and Monroe streets, has work nearing completion on a new plant addition and will have the unit ready for occupancy at an early date. All miscellaneous completion contracts have been awarded. It will be two-story, 90 x 192 feet, reported to cost over $40,000, with equipment. C. F Dieffenbach, 84 Washington street, Hoboken, is architect.

Indianapolis, Ind.—The Crown Paper Box Company, Inc., has been organized with a capital of $35,000, to take over and expand the company of same name with plant in the Murphy Building. The new organization will develop manufacture of different paper container specialties. It is headed by Franklin H. Thompson, John J. Wanner and Leo T. Dwyer.

New York, N. Y.—The Union Sandpaper Co., Boston, Mass., a Massachusetts corporation, has filed notice of organization to operate in New York with a capital of $1,000,300.

Phildelphia, Pa.—The John Crompton Adelphia Corporation, 145 West Columbia avenue, manufacturer of paper boxes and containers, has work under way on proposed new plant addition at Palmer and Mascher streets, recently referred to in these columns, consisting of a four-story structure, reported to cost over $70,000, with equipment. It is understood that present plant will be removed to new location and considerable increase in output arranged. J. Fletcher Street, 1120 Locust street, Philadelphia, is architect.

St. Louis, Mo.—The J. D. Horne Wall Paper Company, 3178 Easton avenue, has arranged for an increase in capital to $100,000, for general expansion in operations.

Detroit, Mich.—The National Automotive Fibres, Inc., is making improvements and alterations in its local plant, including changes in equipment, and will place the mill on a capacity schedule at an early date. The company is said to have secured contracts to insure full production for some time to come. Headquaters are at San Francisco, Cal.

Batavia, N. Y.—The E. N. Rowell Company, Batavia, manufacturer of paper boxes and containers, is running at about 75 per cent of capacity, giving employment to a working force of about 275 persons. Company is said to have booked some satisfactory business, and it is proposed to continue on the present basis for some time to come.

Springfield, Mo.—The Springfield Tablet Manufacturing Company, Jefferson and Mill streets, has asked bids on general contract for a new addition to its paper goods plant, consisting of a two-story and basement unit, 60 x 77 feet, reported to cost over $45,000, with equipment. Initial project called for a three-story structure, but plans have been changed.

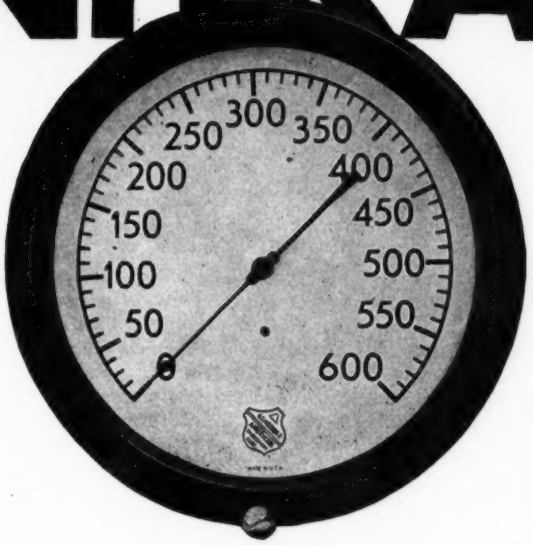
Chicago, Ill.—The Vortex Manufacturing Company, 421 North Western avenue, manufacturer of paper cups and containers, is making ready to occupy its new plant unit now practically completed, and will develop increased capacity at an early date. The new structure will provide about 65,000 square feet of additional floor space. Present factory will be removed to the new building and the structure vacated will be given over to storage and distributing service to develop increased facilities in that division.

Kelso, Wash.—The Kelso Manufacturing Company, recently organized with a capital of $25,000, is planning to operate a local wood pulp business in conjunction with a sawmill, details of which are now being arranged. The company is headed by C. C. Bashor and H. F. Fleetwood, and will be represented by Atwell & Moore, First National Bank Building, Kelso.

Quebec, Que.—Plans are said to be maturing for the construction of a new hydro-electric power plant at Carillon Falls, Argenteuil County. Both the International Paper and Power Company and the Shawinigan Water and Power Company are interested in the project, and the Provincial Government is said to approve the development. The plant will be equipped for a gross capacity of 400,000 horespower, a considerable portion of which will be used for paper mill service. An extensive transmission system is proposed in connection with the new station.

Buckingham, Que.—The James MacLaren Company, Ltd., has asked bids on general contract for the construction of a new hydroelectric generating plant on site between Buckingham and Masson, Que., to be used primarily for service at its Buckingham paper mills. The project will include a transmission

The NITRALLOY movement of this Gauge



The Ashcroft American DURAGAUGE is made in sizes from 4½ to 16", for all pressures up to 10,000 lb., in Wall Mounted case, Flush Mounted and Flush Mounted Illuminated cases

. . . outlasts a Hundred others

SIX months ago the nitralloy movement of one of our new Ashcroft American DURAGAUGES was connected to a small compressed air hammer vibrating at about 1500 cycles per minute. At the same time the movement of a commercial gauge was attached to the same hammer in the same way.

The hammer has been vibrating 24 hours a day ever since. The nitralloy movement still shows no sign of wear, but the other gauge movement has been replaced successively by a hundred others . . . . including movements taken from every make of gauge. The average length of life of an ordinary bronze movement was 75 minutes under this severe test. By that time the teeth were worn almost bare.

These movements have, in every instance, literally gone to pieces before being replaced . . . . but the new Ashcroft American nitralloy movement remains in perfect condition.

Frankly, we don't know how long it *will* last! But consider what this means to you . . . . here at last is a gauge with a practically indestructible movement; a gauge that is made to last forever.

The Ashcroft American DURAGAUGE is unconditionally guaranteed for five years, and to be accurate within one-half of 1% over the entire scale range. Such a gauge could only be produced by a Company with a background of eighty years of gauge manufacturing experience. Write today and get the complete story.

CONSOLIDATED ASHCROFT HANCOCK CO., INC.
Bridgeport, Conn.
Subsidiary of Manning, Maxwell & Moore, Inc.

CONSOLIDATED ASHCROFT HANCOCK

ASHCROFT AMERICAN DURAGAUGE

Specify Catalogs Desired:

American Dial Thermometers	G-9	American Recording Gauges	E-9	Consolidated American Safety and Relief Valves	Z-9
American Glass Thermometers	F-9	American Draft Gauges	B-9	Hancock Bronze Valves	WB-9
American Recording Thermometers	H-9	American Gauge Testers	D-9	Hancock Cast Steel Valves	WA-9
Ashcroft American Gauges	A-9	American Tachometers	J-9	Hancock Forged Steel Valves	W-9
American Temperature Controllers	R-9	Ashcroft Power Control Valves	M-9		

line and is reported to cost over $6,000,000, with power dam, equipment, etc. It is understood that awards will be made early in the coming year. The H. K. Ferguson Company, 25 West Forty-third street, New York, is engineer, in charge.

Ornskoldsvik, Sweden—The Mo & Domsjo Wallboard Company, Strandvagen 1, Stockholm, has completed the construction of a new mill at Ornskoldsvik, and will place the unit in service at once. The plant will be given over to the production of a new wallboard product, known as "Treetex," and will be manufactured under the American system of grinding up chips and saw-mill waste into fibres; the finished product is of white color and porous. The plant will be one of the largest of its kind and is said to represent an investment of more than $130,000. Karl Salin is managing director of the company.

Chester, Pa.—The Scott Paper Company is continuing production on a full capacity schedule with regular working force, and will hold to this basis of output for an indefinite period. The mill is said to be closing a better year than in 1929.

New Companies, Etc.

New York, N. Y.—The Market Paper Company has been incorporated with a capital of 20 shares of stock, no par value, to deal in paper goods of various kinds. E. J. Kukas, 521 Fifth avenue, is one of the incorporators and will represent the company.

Port Chester, N. Y.—The Saranac Pulp and Paper Company has arranged for an increase in capital from 35,000 to 130,000 shares of stock, for general expansion. Of the new capitalization, 10,000 shares will be preferred with value of $1,000,000 and 120,000 common stock, no par value.

New York, N. Y.—The Robert L. Nelson Company has been incorporated with a capital of 200 shares of stock, no par value, to deal in paper goods of various kinds. The company is represented by McManus, Ernst & Ernst, 170 Broadway, New York.

Sundsvall, Sweden—The Swedish Cellulose Company, an interest of the Kreuger & Toll Company, Stockholm, Sweden, is said to have plans nearing completion for the construction of its proposed new central laboratory in the Sundsvall district, to be operated in conjunction with the new Ostrand pulp mill now in course of construction. The laboratory unit will be used for research and control of different varieties of chemical wood pulp produced at the mills, and is reported to cost over $150,000, with equipment. The new Ostrand mill has been designed as one of the largest and most modern plants of its kind in the world, and will be equipped for an annual capacity of about 100,000 tons of wood pulp. In addition to this property, the Swedish Cellulose Company operates a group of 10 large pulp and saw-mill properties. Gosta Hall has been appointed director of the new laboratory, and will be active in the development of the new unit.

Awards Granted to Injured Paper Mill Workers

TROY, N. Y., December 27, 1930.—At a hearing of Compensation Court presided over by Judge Holland in this city a number of cases affecting injured paper mill workers were considered. An award of $3,227 was granted Edward Stickles for injuries which he suffered in 1929 while in the employ of the Albia Box and Paper Company. The claimant was injured by an automobile while making his rounds as a night watchman. The case had been up for consideration before. A claim made by Martin Kelly, an employee of the Algonquin Paper Co., Ogdensburg, has also been favorably acted upon after a fight in the courts for several years. He has been awarded $4,337.28 for the permanent loss of a leg. The case was carried by the Utica Mutual Insurance Company and two appeals were taken to the appellate division on the ground that the injury was not due to an accident.

New York Trade Jottings

New York Stock Exchange has admittted to listing 3,184 additional shares of common stock of the Scott Paper Company, without nominal or par value.

* * *

Regular weekly luncheons and meetings of the New York Division of the Salesmen's Association of the Paper Industry will be resumed next Tuesday, January 6, at George's Restaurant, 507 Lexington avenue, New York.

* * *

Thomas J. Burke, Director of the Cost Department of the American Paper and Pulp Association, has now returned to the office, after being confined to his home for the past two weeks, with a severe attack of Colitis, and wishes to thank friends for inquiries made during his absence.

* * *

Walter B. Tappen, who has been associated with D. S. Walton & Co., paper merchants, for twenty-two years; and Gustave C. Indruk, associated with D. S. Walton & Co. for thirty-one years, have formed a partnership to be known as the Tappen & Indruk Company, with office at 260 West Broadway, New York, (Telephones Walker 5-9837 and 9838) and with warehouse at 50 Lispenard street. The new firm will handle papers, twines, special bags and envelopes.

* * *

Corn Products Refining Company, producers of paper making starch, of 17 Battery Place, New York, have declared an extra dividend of 50 cents on the common stock in addition to the regular quarterly dividend of 75 cents on the common, both payable January 20 to stock of record January 5. This brings dividend declarations for 1930 up to $4 a share on the common stock. In addition, the regular quarterly dividend of $1.75 was declared on the preferred stock, payable January 15 to stock of record January 5.

Injured Paper Mill Workers Awards

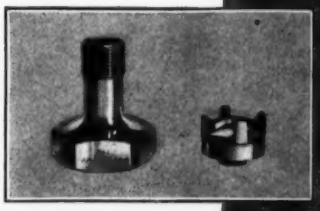
[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., December 27, 1930.—A number of paper mill workers in this section received awards for recent injuries at a session of Compensation Court presided over by Judge James Richardson. Among the largest awards was one of $500 to John Blaze for injuries received while working at the Norfolk plant of the St. Regis Paper Company. The rate of compensation in the case of Milo Yomes, an employee of the Gouverneur mill of the International Pulp Company, was fixed at $14.09 a week and all past payments were ordered corrected accordingly. He suffered the loss of an eye as the result of an injury while working. Frank Foster was awarded $255 for the loss of a thumb while working for the Unity Paper Mills at Potsdam, payment being based at $17.02 for fifteen weeks. The case of Howard Lacey, an employee of the W. H. Loomis Talc Corporation, was ordered continued for further examination. The insurance carrier objected to an award for forty per cent loss of the use of an arm on the grounds that medical examination revealed no disability. A medical report was ordered filed in the case of Jason Clark, an employee of the Norfolk plant of the St. Regis Paper Company, and disability payments were approved.

To Provide Water for Camas Plant

PORTLAND, Ore., December 27, 1930.—The Crown-Williamette Paper company has received a permit to appropriate 50 second feet of water from the Columbia river slough at the mouth of the Washougal river in Washington and will develop a project at a cost of $50,000 to provide water for use in the Camas plant.

EXTRA WEIGHT
means extra service



THE extra weight of Fig. 106-A Jenkins Standard Bronze Globe Valve is a result of extra metal . . . and every extra ounce means extra service . . . longer, leak-tight valve performance.

In this sturdy Jenkins, as well as in its corresponding angle and cross types, are combined both the one-piece screw-over bonnet and the slip-on stay-on disc holder.

The bonnet construction is a refinement which provides unusual strength. The bonnet can be easily removed and replaced *repeatedly* without springing or distorting. Jenkins slip-on disc holder is unique in that an opening turn or so of the hand wheel is sufficient to prevent it from dropping off the spindle when the valve bonnet is removed.

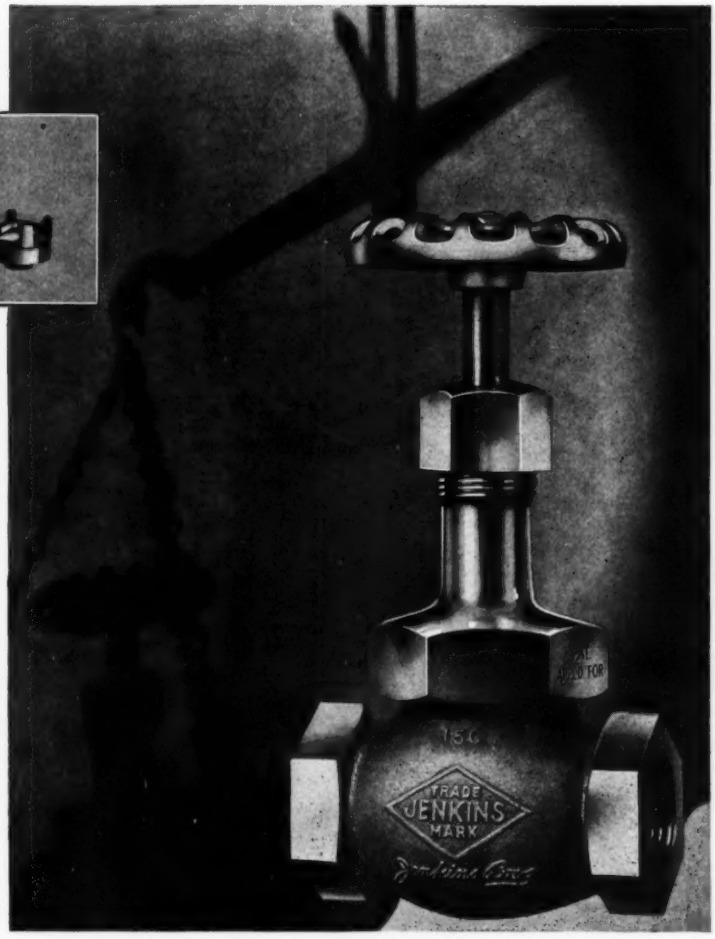


FIG. 106-A, *Screwed, Jenkins Standard Bronze Globe Valve, with one-piece screw-over bonnet and slip-on stay-on disc holder. For 150 lbs. steam working pressure, or 250 lbs. oil, water, gas working pressure.*

Ask your supply man to show you Fig. 106-A. It is an up-to-the-minute valve with all the earmarks of Jenkins quality. Write for illustrated Bulletin 141.

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80 White Street, New York, N. Y. | 524 Atlantic Avenue, Boston, Mass. | 133 No. Seventh Street, Philadelphia, Pa.
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Jenkins
VALVES
Since 1864

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

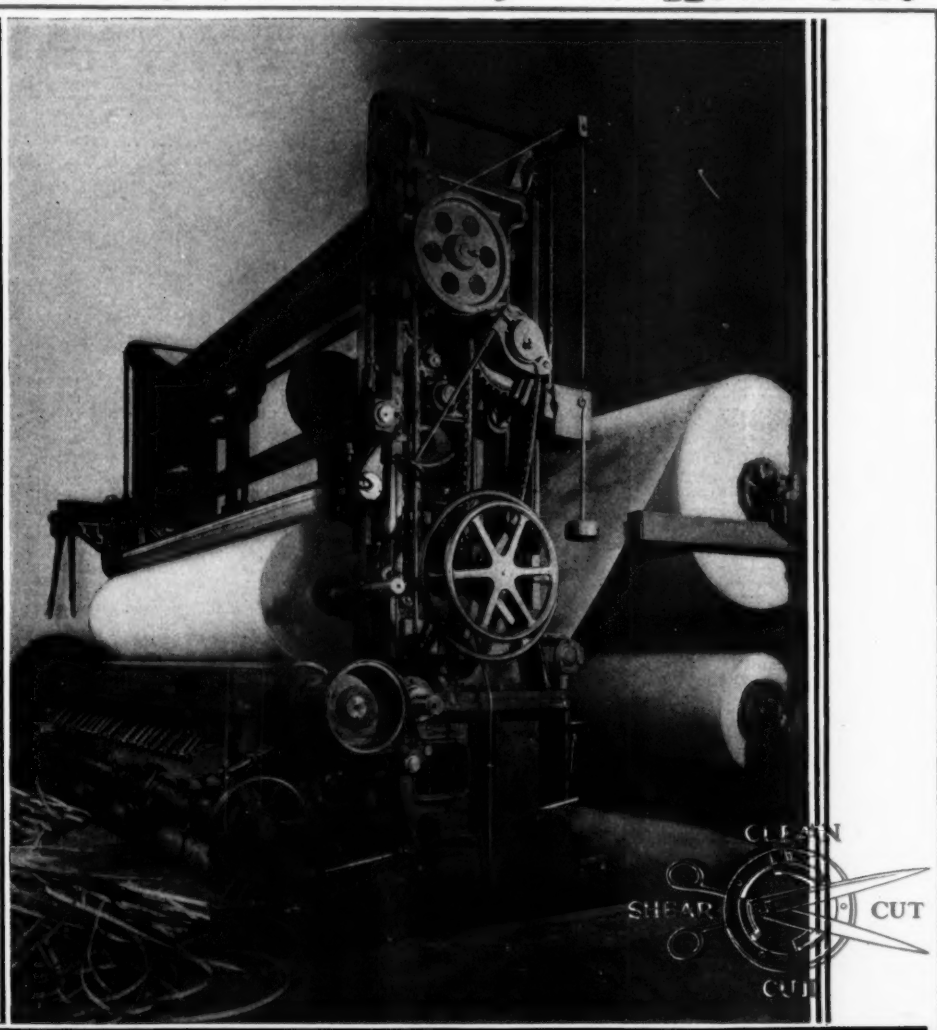
For the Month Ending October 31, and for the Ten Months Ending October 31, 1930 as Compared with Corresponding Month of Previous Year

IMPORTS—PAPER

	October				Ten Months Ending October 31			
	1929		1930		1929		1930	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
PAPER AND MANUFACTURES	.....	$14,993,400	.....	$13,259,907	.....	$133,789,713	.....	$122,978,285
Printing paper—								
Standard news print ....lbs...free	445,974,119	13,230,985	419,888,338	12,051,691	3,942,089,751	117,979,654	3,779,109,812	109,492,512
Imports from:								
Finland ....lbs.	6,990,657	173,301	7,733,055	181,161	53,872,963	1,303,233	70,574,376	1,629,167
Germany ....lbs.	1,389,122	33,259	2,308,483	55,432	15,839,503	389,009	21,154,338	513,390
Norway ....lbs.	794,321	19,728	1,745,150	40,803	5,574,119	139,121	14,966,231	354,682
Sweden ....lbs.	11,396,899	288,043	16,993,667	421,736	84,444,663	2,148,490	116,157,506	2,889,159
Canada ....lbs.	404,541,806	11,097,701	358,725,483	10,440,310	3,564,917,347	107,868,877	3,305,126,424	96,998,068
Newfoundland and Labrador....lbs.	20,861,314	618,953	32,382,500	903,249	217,194,408	6,125,629	251,129,614	7,107,999
Other countries ....lbs.	.....	.....	.....	.....	246,748	5,295	1,323	47
All other, n. e. s....lbs...dut.	516,931	25,584	134,641	7,459	3,755,578	187,810	2,196,076	106,170
Greaseproof and waterproof papers....lbs...dut.	195,087	58,424	56,962	9,037	1,497,328	377,371	921,176	275,749
Kraft wrapping paper....lbs...dut.	1,237,992	52,278	717,397	27,043	8,451,717	362,639	6,724,648	264,465
Other wrapping paper....lbs...dut.	578,519	15,261	264,418	14,455	6,281,986	180,099	2,082,381	120,815
Writing and drawing papers, etc....lbs...dut.	341,957	104,875	217,394	48,384	2,731,281	736,064	2,972,290	739,157
Writing paper and envelope combinations ....dut.	.....	.....	.....	49,989	.....	.....	.....	209,853
Surface-coated paper ....lbs...dut.	193,913	78,853	121,374	49,027	2,062,792	877,676	1,597,663	654,610
Uncoated paper, decorated or embossed.lbs...dut.	5,882,644	129,017	3,473,698	85,602	.....	.....	70,982	23,941
Tissue and similar papers....lbs...dut.	544,660	290,982	.....	.....	4,172,198	2,201,465	2,056,030	1,130,184
Weighing not over 6 pounds to the ream ....lbs...dut.	.....	.....	130,031	95,944	.....	.....	503,531	301,722
Other ....lbs...dut.	.....	.....	72,614	24,732	.....	.....	209,266	80,114
Paper boards, n. e. s.—								
Pulp board, in rolls....lbs...dut.	5,882,644	139,017	3,473,698	85,062	50,499,399	1,097,127	38,456,321	874,094
Paper board, pulp board, n. e. s., and card board ....lbs...dut.	1,328,042	32,397	1,226,526	31,215	17,434,078	413,792	11,705,926	286,241
Leather board, test and wall board..lbs...dut.	98,313	4,956	112,000	8,757	1,492,774	60,133	1,465,720	89,908
Cigarette paper, cigarette books, and covers ....lbs...dut.	1,114,911	355,010	1,578,237	400,292	10,075,931	3,379,633	11,052,990	3,503,690
Hanging paper (wall paper)....lbs...dut.	225,692	46,881	80,547	35,116	2,168,974	597,148	1,732,831	532,302
Duplex decalcomania paper, not printed.lbs...free	29,644	7,083	23,557	5,436	511,614	128,623	420,089	99,785
Paper boxes ....dut.	.....	167,150	.....	87,898	.....	1,491,459	.....	1,069,008
Papier-mache and pulp manufactures, n. e. s. ....dut.	.....	47,617	.....	31,745	.....	486,608	.....	471,638
All other paper and manufactures....dut.	.....	346,047	.....	189,359	.....	3,232,412	.....	2,652,327
WOOD PULP								
Mechanically ground wood pulp....tons..free	24,125	$584,657	.....	.....	192,904	$4,865,512	128,828	$3,593,166
Unbleached ....tons..free	.....	.....	27,451	$711,843	.....	.....	91,900	2,393,014
Bleached ....tons..free	.....	.....	500	12,682	.....	.....	2,893	77,765
Sulphite wood pulp....tons	89,765	5,267,437	73,902	4,096,720	857,073	50,295,513	808,126	46,586,637
Unbleached ....tons..free	61,584	3,119,916	46,684	2,200,328	579,639	29,238,582	539,406	27,367,627
Bleached ....tons..free	28,181	2,147,521	27,218	1,896,392	277,434	21,056,931	268,720	19,219,110
Imports from:								
Finland ....tons	4,656	219,452	7,363	357,289	88,535	4,285,900	83,068	4,120,262
Germany ....tons	5,445	385,187	6,053	411,309	53,058	3,693,418	56,342	3,788,129
Norway ....tons	5,093	361,615	3,521	229,861	49,373	3,375,834	50,640	3,224,571
Sweden ....tons	36,592	1,980,197	27,774	1,388,220	332,225	18,338,243	303,944	16,470,628
Canada ....tons	36,190	2,228,681	27,033	1,613,532	315,443	19,617,708	297,603	18,135,701
Other countries ....tons	1,789	92,305	2,158	96,509	18,439	984,410	16,529	847,346
Sulphate wood pulp, unbleached (kraft pulp) ....tons..free	38,812	2,054,759	19,965	844,566	318,787	17,135,276	277,306	13,314,274
Imports from.								
Finland ....tons	802	33,292	1,375	64,266	23,420	1,114,834	28,792	1,249,654
Norway ....tons	2,508	126,223	607	24,196	14,428	754,805	11,037	484,001
Sweden ....tons	25,628	1,302,043	14,000	501,404	183,153	9,302,418	177,122	7,939,948
Canada ....tons	9,353	569,946	3,795	246,958	92,563	5,722,678	56,837	3,489,790
Other countries ....tons	521	23,255	188	7,742	5,223	240,541	3,518	150,881
Sulphate wood pulp, bleached....tons..free	1,209	104,624	3,919	291,786	12,562	946,857	14,821	1,157,953
Soda pulp ....tons..free	.....	.....	232	15,106	.....	.....	1,512	102,799
Other pulp ....tons..free	462	51,351	25	1,730	4,985	422,416	2,295	170,821
CRUDE PAPER STOCK								
Rags for paper stock....lbs...free	42,341,319	986,095	14,821,074	235,205	369,779,107	7,769,762	258,181,830	5,115,653
All other paper stock....lbs...free	23,137,691	400,811	12,234,220	172,222	227,234,044	4,516,598	203,687,425	2,739,491
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS								
Colors, dyes, stains, color acids, and color bases, n. e. s....lbs...dut.	628,265	$671,383	515,009	$561,420	6,467,718	$7,237,303	4,187,363	$4,468,063
Imports from:								
Belgium ....lbs.	16,101	20,339	7,330	10,115	66,313	81,211	50,822	64,469
France ....lbs.	3,256	3,298	2,566	3,263	106,219	156,552	33,796	43,755
Germany ....lbs.	321,131	326,029	321,700	362,827	4,086,544	4,421,869	2,675,623	2,871,167
Italy ....lbs.	2,980	2,413	4,675	4,308	11,208	9,487	15,244	16,595
Switzerland ....lbs.	272,844	305,763	157,453	159,711	2,076,753	2,432,069	1,273,625	1,336,650
United Kingdom ....lbs.	9,684	9,482	17,720	17,788	73,294	82,220	93,685	97,356
Other countries ....lbs.	2,269	4,059	3,565	3,408	47,387	53,895	44,568	38,071
Casein or lactarene ....lbs...dut.	2,199,239	264,421	142,621	11,119	24,038,622	2,879,086	17,105,488	1,845,845
China clay or kaolin....tons..dut.	16,409	183,706	13,501	145,419	221,805	2,406,294	188,313	1,967,043

(Continued on page 38)

a clean cut ~ a sure cut ~ a shear cut ~



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a shear cut ~ a clean cut ~ a sure cut ~ a shear cut ~

a clean cut ~ a sure cut ~ a shear cut ~

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 36)

EXPORTS—PAPER

	October 1929 Quantity	October 1929 Value	October 1930 Quantity	October 1930 Value	Ten Months Ending October 31 1929 Quantity	Ten Months Ending October 31 1929 Value	Ten Months Ending October 31 1930 Quantity	Ten Months Ending October 31 1930 Value
PAPER AND MANUFACTURES	.....	$3,221,943	.....	$2,362,364	.....	$31,074,532	.....	$26,255,153
Printing paper—								
News print paper ....lbs.	5,616,578	185,676	1,645,876	61,787	29,326,002	1,074,839	18,079,115	730,510
Exports to:								
Europe ....lbs.	82,885	2,509	235,005	8,303	682,189	40,687	1,793,630	92,038
Canada ....lbs.	226,222	10,604	.....	.....	706,924	33,304	50,207	2,006
Central America ....lbs.	383,404	14,571	133,197	5,476	1,471,391	53,477	1,255,245	45,886
Cuba ....lbs.	378,128	10,484	324,230	14,860	2,878,172	103,266	2,792,110	118,837
South America ....lbs.	3,386,076	106,132	423,488	12,478	10,060,728	357,172	3,944,922	134,601
China, Hong Kong, and Kwantung...lbs.	443,265	15,540	.....	.....	4,366,912	148,468	1,980,473	108,494
Philippine Islands ....lbs.	572,291	18,507	328,400	11,810	7,582,448	267,431	5,349,546	188,611
Other countries ....lbs.	144,253	7,329	201,556	8,860	1,577,238	71,034	912,982	40,037
Book paper, not coated....lbs.	3,135,175	225,055	2,016,414	138,873	31,106,782	2,199,257	28,659,500	1,925,991
Exports to:								
Europe ....lbs.	123,126	16,236	293,885	21,732	1,515,986	139,939	1,436,186	112,613
Canada ....lbs.	1,236,374	71,827	289,497	19,935	10,188,883	608,212	8,993,329	544,722
Mexico ....lbs.	63,562	6,796	47,511	4,726	501,390	52,199	579,810	62,316
Cuba ....lbs.	411,661	28,675	408,574	24,555	4,270,071	300,837	3,462,957	233,508
Argentina ....lbs.	33,027	3,691	70,622	4,802	1,622,242	129,007	1,261,745	92,238
Other South America....lbs.	65,110	5,997	82,374	6,070	1,128,161	94,737	1,463,820	113,415
China, Hong Kong, and Kwantung...lbs.	664,774	39,310	392,765	24,502	5,825,476	353,235	5,138,514	316,489
Philippine Islands ....lbs.	277,232	17,372	265,009	20,111	3,626,647	246,249	3,230,613	212,268
Australia ....lbs.	81,855	20,056	24,242	734	1,051,591	156,510	823,037	62,338
Other countries ....lbs.	178,454	15,095	141,935	11,706	1,376,335	118,332	2,269,489	176,084
Cover paper ....lbs.	171,047	31,608	191,123	28,949	1,729,013	296,639	1,898,178	297,694
Greaseproof and waterproof paper....lbs.	173,140	37,770	404,212	76,672	2,420,447	442,677	3,123,146	610,898
Overissue and old newspapers....lbs.	10,805,559	110,402	15,716,358	112,553	121,121,061	1,346,983	138,367,380	1,106,330
Wrapping paper ....lbs.	3,827,746	258,799	3,608,679	213,335	34,974,095	2,404,560	37,297,957	2,358,045
Surface-coated paper ....lbs.	690,855	83,999	306,240	48,277	12,428,629	1,182,417	6,954,935	787,456
Tissue and crepe paper....lbs.	386,486	86,181	373,869	77,486	3,955,406	890,542	4,059,518	802,172
Toilet paper ....lbs.	642,074	68,936	693,145	75,894	5,940,874	664,762	6,349,257	690,549
Paper towels and napkins....lbs.	412,733	47,633	312,239	37,709	3,061,538	374,748	3,402,559	395,626
Boxboard of paperboard and strawboard....lbs.	4,396,937	121,448	3,717,575	100,020	47,312,391	1,260,801	55,135,441	1,367,359
Bristols and bristol board....lbs.	200,164	20,913	223,474	22,054	2,339,836	236,257	1,912,553	182,307
Other paper board....lbs.	4,292,553	194,881	2,391,442	117,350	38,836,893	1,733,983	29,118,252	1,406,717
Sheathing and building paper....lbs.	1,900,470	62,483	1,126,865	36,660	19,467,008	652,255	16,616,220	563,256
Fiber insulating lath or board....sq. ft.	1,981,428	68,783	5,678,167	171,263	23,340,516	779,589	55,635,976	1,772,319
Wall board of paper or pulp....sq. ft.	7,953,890	268,081	2,401,790	78,905	58,984,246	1,927,644	24,881,731	827,835
Blotting paper ....lbs.	412,192	46,008	216,334	27,649	3,129,983	369,466	2,716,693	331,387
Filing folders, index cards, and other office forms ....lbs.	153,364	59,594	122,664	47,368	1,374,466	504,319	1,352,537	503,789
Papeteries (fancy writing paper)....lbs.	159,248	31,612	67,272	15,718	718,678	180,291	563,680	127,979
Other writing paper ....lbs.	2,072,782	223,521	1,611,173	155,439	24,090,341	2,539,585	18,428,844	1,803,590
Paper hangings (wall paper)....rolls	.....	39,884	292,110	27,256	.....	512,378	2,715,710	401,469
Paper bags ....lbs.	1,008,951	98,486	1,003,246	90,685	10,207,092	861,734	9,018,256	739,664
Boxes and cartons....lbs.	2,008,487	160,884	1,324,802	86,304	24,302,119	1,619,771	20,180,767	1,186,061
Envelopes ....lbs.	220,049	40,113	195,707	30,803	2,034,137	354,143	1,906,146	315,959
Vulcanized fiber sheets, strips, and tubes ....lbs.	567,208	134,986	357,281	101,788	5,254,935	1,278,268	3,928,542	985,482
Cash-register and adding-machine paper....lbs.	658,572	56,665	224,663	23,987	4,529,981	432,053	3,947,569	365,509
Other paper and paper products....	.....	457,542	.....	357,580	.....	4,954,571	.....	3,669,200

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	3,297	158,768	4,843	226,412	34,264	1,841,131	26,056	1,412,291
Soda wood pulp ....tons	72	5,862	68	5,612	1,565	128,631	1,771	138,282
Other wood pulp ....tons	54	2,592	2,476	21,587	5,591	375,953	9,887	254,581
Rags and other paper stock....lbs.	13,519,808	184,444	4,579,309	49,262	97,483,026	1,677,946	51,971,703	716,684

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery....	.....	322,779	.....	314,417	.....	3,264,110	.....	2,982,912

Late Howard Marston Estate $900,000

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 27, 1930.—An inventory of the estate of the late Howard Marston, for many years general manager of the Government stamped envelope plant in this city, first as the Midwest and then the Mercantile, and finally as the International Envelope Corporation, was filed this week in Probate Court by the appraisers named by the court.

The estate value is given in excess of $800,000 and probably will reach $900,000 or more as the value of certain real estate south of this city was not stated.

Mr. Marston, whose illness was due to his unusual energy in pushing projects, both private and public, resulting in an attack of pneumonia, was interested financially in a number of paper enterprises. Among the firms in which he was interested may be mentioned the Specialty Paper Company, the International Paper and Power Company, International Super Power Company, Holding Corporation of the American Lithographic Company, the Ohio Power Company, and the Geayer-Dayton Company, an advertising agency. He also held stocks in the Winters National Bank and Trust Company, of which he was an official; the Van Cleve Hotel Company, of which he was president, and numerous other concerns in Dayton, the Miami Valley and throughout the country.

It was a noteworthy fact that most of his holdings were in average amounts and embraced tobacco and steel stocks, railways and banks, real estate and investing corporations. He also held many bond investments and stock in Dayton building and loan associations.

Mr. Marston's career had been a busy one, and he had given much of his time since he came to this city to take charge of the original contract for supplying the Government with stamped envelopes and newspaper wrappers, to the public service. His wartime work was noteworthy and his efforts for the Community Chest, which he headed for a time, were highly commended. No task seemed too strenuous for him if for the public good.

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ESTABLISHED 1872

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COMING EVENTS

American Paper and Pulp Association, fifty-fourth Convention and Meeting. Pennsylvania Hotel, February 16-19. Annual Meeting, Thursday, February 19. Annual Banquet, Grand Ball Room, Thursday, February 19.

National Paper Trade Association of the United States. Convention, Pennsylvania Hotel, February 16-18. Luncheon, Wednesday, February 18.

Technical Association of the Pulp and Paper Industry. Convention, Pennsylvania Hotel, February 17-19. Luncheon, Thursday, February 19.

Salesmen's Association of the Paper Industry. Annual Meeting, Pennsylvania Hotel, Tuesday, February 17. Luncheon, Tuesday, February 17.

New York Association of Dealers in Paper Mills' Supplies, Annual Banquet, Hotel Commodore, Tuesday, February 17.

FOREIGN PAPER TRADE

Exports of paper and paper products from the United States during October amounted to $2,362,364, representing a gain of 2½ per cent over the preceding month's record, but falling 26 per cent, or almost a million dollars, below last year's total for the same month, according to the Paper Division of the Department of Commerce.

Exports of paper and paper products during the first ten months of the year totaled $26,255,153, as against $31,074,523 in the same period last year, or a loss of 15 per cent. The bulk of this loss was absorbed by the following items, the exports of which decreased as follows: Wall board of paper or pulp, 57 per cent; papeteries (fancy writings), 29 per cent; other writing paper, and boxes and cartons, 26 per cent; wall paper, bristols and bristol board, vulcanized fiber sheets, strips and tubes, 22 per cent; other paper board and over-issue and old newspapers, 18 per cent; paper bags, cash register and adding machine paper, and sheeting and building paper, 14 per cent. The commodities which showed only a slight decline during this period were filing folders, index cards and other office forms, blotting paper, tissue and crepe paper, wrapping paper and envelopes. Against these losses there were the following gains: fiber insulating lath or board, 127 per cent; greaseproof and waterproof papers, 38 per cent; and surface coated papers, 35 per cent; whereas, slight increases were recorded during this 10 month period in cover paper, toilet paper, paper towels and napkins, and box board of paperboard and strawboard.

In October, as compared with the corresponding month in 1929, the foreign markets took the following commodities in greatly reduced quantities, the decline expressed in percentages being as follows: Wallboard of paper or pulp, 70 per cent; newsprint, 66 per cent; cash register and adding machine paper, 57 per cent; boxes and cartons, 46 per cent; blotting paper and sheathing and building paper, 41 per cent; book paper, uncoated and other paper board, 39 per cent; envelopes and vulcanized fiber sheets, strips and tubes, 24 per cent; paper towels and napkins, 20 per cent; and wrapping paper and box board of paperboard and strawboard, 17 per cent. The following items, on the other hand, made large gains over the corresponding month last year: Fiber insulating lath or board, which went up 149 per cent; greaseproof and waterproof papers, which registered a gain of 103 per cent and surface coated papers, which showed an increase of 42 per cent.

Compared with the preceding month's record, October shipments of the following ran considerably higher: wall paper, 72 per cent; cover paper, 41 per cent; bristols and bristol board, 60 per cent; over-issue and old newspapers, 32 per cent, greaseproof and waterproof papers, and vulcanized sheets, strips and tubes, 26 per cent; while the heaviest losses were sustained by boxes and cartons, which declined 31 per cent, and papeteries, and box board of paperboard and strawboard, each of which were 22 per cent lower

During the first ten month period exports of paper base stocks amounted to $3,779,709, as against $4,440,742, last year for the same period, or a decline of 15 per cent. Rag exports were 57 per cent lower during this period and sulphite wood pulp 23 per cent, whereas soda wood pulp registered a small gain. During October exports of paper base stocks were 137 per cent higher than in the preceding month, but were 15 per cent lower than in the corresponding month last year. Sulphite wood pulp made a notable gain, registering a 269 per cent over the preceding month's record and 42 per cent over the same month last year.

Imports of paper and paper products into the United States in October totaled $13,259,907, representing a gain of 20 per cent over the preceding month's total, but being 11 per cent under those a year ago. During the ten month period such imports reached a total of $122,978,285, as against $133,789,713 in the corresponding period last year. Receipts of newsprint, which represent the great bulk of the above imports, totaled $12,051,691 in October, or a loss of 8 per cent, as compared with the same month last year, but showing a gain of 20 per cent over the previous month's record. During the ten month period our newsprint imports were $8,487,142 less than in the same period in 1929.

During October imports of the following commodities ran considerably higher than in the preceding month: Greaseproof and waterproof papers, Kraft wrapping paper, other wrapping paper, surface coated papers, uncoated paper, decorated and embossed, tissue and similar papers, pulp board in rolls, paper board, pulp board and cardboard, cigarette paper, books and covers.

The most significant losses in imports of paper and paper products, exclusive of newsprint, during the 10 month period were as follows: Greaseproof and waterproof papers, and Kraft wrapping, approximately, 27 per cent; paper board, pulp board and cardboard, 30 per cent; other wrapping, 32 per cent, paper boxes, 28 per cent, surface coated papers, 25 per cent; pulp wood in rolls

and duplex, decalcamonia paper, unprinted, approximately, 23 per cent; and wall paper, 10 per cent. Imports of leather board, test and wall board gained approximately 50 per cent, while slight gains were made in imports of writing and drawing papers, and cigarette paper, cigarette books and covers during the ten month period, as compared with the same period last year.

Paper base stocks during the first ten months were imported to the extent of $90,964,905, or 8 per cent less than in the same period last year. Pulpwood exports were slightly higher, rough spruce and rossed spruce declined slightly, but peeled spruce showed a gain of 41 per cent. Unbleached sulphate wood pulp (Kraft) imports were 22 per cent lower, while bleached sulphate was 22 per cent higher.

Receiver for Deerfield Glassine Co.

[FROM OUR REGULAR CORRESPONDENT]

GREENFIELD, Mass., December 30, 1930—Attorney Charles N. Stoddard of this town has been appointed receiver of the Deerfield Glassine Company at Monroe Bridge by Judge Lowell in the United States Circuit Court at Boston. This action was taken on petition of a number of stockholders headed by Leroy Woodland of Chicago. The Glassine Company plant formerly the Deerfield River Paper Company has been remodelled and enlarged and equipped with new machinery and its assets are valued at about $2,600,000. Lack of ability to meet obligations outstanding is assigned as the reason for the financial trouble; but Attorney Stoddard says the outlook for the continuation of business is bright and that the plant will in all likelihood be kept in operation.

The plant is in fine condition and has been receiving a fair amount of orders, it is said. It has one 96-inch and one 136-inch Fourdrinier with complete supplemental machinery and a capacity of 27 tons a day. About 170 hands are employed when running full.

The officers of the company are the following: President, Joseph H. Wallace; Vice-President in charge of production, Paul F. Hodgdon; Secretary, Joseph Poole; Treasurer, William L. Ross; General Manager, E. T. Coughlin; Superintendent, J. Ryder.

J. R. Krueger Celebrates Golden Wedding

Members of the paper industry will be pleased to learn that John R. Krueger, of 38 Main street, East Orange, N. J., and Mrs. Krueger, will celebrate the golden anniversary of their wedding on New Year's Day, January 1.

Mr. Krueger was the first to start a coating mill in the west at Chicago, Ill., in 1892, under the name of the Western Coated Paper and Card Company, which was succeeded by the Riverview Coated Paper Company, and since by the Kalamazoo Paper Company.

From 1900 to 1911 he represented the Champion Coated Paper Company in New York, and since that time has experimented at intervals on a substitute for casein, a material for coating book paper, which has been tested as to printing qualities for half tone and color printing, but is not sufficiently waterproof.

Mr. Krueger is now experimenting with certain chemicals to produce this waterproof coating and has so far partly succeeded. He expects to introduce this substitute among the coating mills in the near future.

Tax Refunds in Holyoke District

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 30, 1930—Among recent tax refunds granted by the Federal Government are the following: Eureka Blank Book Company, $9,397.73; American Pad & Paper Company, $1,027.94; Hampshire Paper Company, $590.05; Samuel R. Whiting of Whiting & Cook, Inc. and Collins Manufacturing Company, $1,852.82.

Soviet To Increase Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 24, 1930.—A special commission of the Council of Labor and Defense has established the program of the Soviet paper production according to a report to the Department of Commerce from Assistant Trade Commissioner E. C. Taylor at Paris.

At the end of the five year plan it is estimated that the national consumption will reach 1,870,000 tons out of which 1,215,000 tons will be consumed in the production of newspapers, books, and writing papers. The annual per capita consumption of paper will therefore pass from approximately 9 pounds to 27½ pounds, but in spite of this considerable increase, it will still be well under the consumption in western Europe and North America. The Soviet paper making plants are not in a position to supply the present minimum demand, and it is said that neither the plants now functioning, nor those under construction will ever be in a position to produce the quantities required, their maximum capacity being placed at 510,000 tons of paper annually. It will therefore be necessary to erect new paper making plants to meet the national consumption during the course of the next few years, and the Government Commission which studied this question pronounced in favor of such new construction. The Commission estimated that during the remainder of the present five year plan, 49 other paper mills will have to be built; four during the year 1929-1930, 27 the next year, 3 in 1931-1932 and 15 in 1932-1933.

Columbian Paper Co. To Build Power House

BRISTOL, Va., December 30, 1930—Announcement was made last week by the Bristol Chamber of Commerce that the Columbian Paper Company, one of Bristol's largest manufacturing plants, will soon construct a large and modern power house to supplant the present power supply.

The new addition will be of the latest type and equipped with the most modern boilers and fixtures to insure high efficiency and a reduction in operating costs.

"The Columbian Paper Company, under Mr. W. I. Bruner, general superintendent," the Chamber of Commerce said, "has always had the interest of Bristol at heart and in the construction of this power house will use Bristol labor as far as possible and will buy as much of the equipment as can be procured in this city.

"This concern has meant much to Bristol and this section. It has been operating a full force six days each week and 24 hours a day. The force is now 175 men.

"Bristol is to be congratulated on having industries of this type that are constantly improving and keeping up to the highest point of efficiency."

To Reduce Waste Dumpage in Deerfield River

[FROM OUR REGULAR CORRESPONDENT]

PITTSFIELD, Mass, December 30, 1930—Clay Perry of this city, president of the Izaak Walton League of Massachusetts held a conference recently with C. M. Baker, engineer of the American Pulp and Paper Association and Paul F. Hodgdon of the Deerfield Glassine Company when an agreement was reached whereby the Glassine Company will immediately attempt to reduce the dumpage of mill waste into the Deerfield River, said to be an excellent trout stream. The New England Power Company will be asked to add fresh water from its reservoir near the mill to dilute the present flow and help improve the stream. This is part of a campaign now being waged to lessen the pollution of rivers and other streams.

The State of Massachusetts has fallen behind in respect to pollution control Mr. Perry states. It is listed as having the worst polluted streams in the nation. Many of our streams originate in the states of New Hampshire and Vermont north of us. They start the pollution and we add to it.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Electrical Development in the Paper Industry in 1930

By R. R. Baker [1]

Modern productive methods in the paper industry, as in many other industries, have demanded higher operating speeds; larger and more powerful machinery; more accurate control; and, in many cases, control of the full automatic type, which eliminates to a large extent the rather uncertain human element from the operation of the machine. This demand confronts the electrical manufacturers each year with new and interesting problems. During the past year the Westinghouse Company has contributed largely in the development and perfection of electrical equipment to meet these new requirements.

Carbon Pile Regulator

During this time the Westinghouse Company has completed the development of the carbon pile section speed regulator for use with sectional paper machine drive. This type of regulator was developed primarily to improve the performance of sectional drive equipment. The regulator embodies a number of features which are entirely new and distinctive. These features include quick response field excitation, effected through field forcing and anti-hunting. These new features permit the individual section motors to respond to either suddenly or gradually applied loads with a minimum of angular displacement, a feature which is of the utmost importance in the most satisfactory performance of the paper machine.

[1] General engineer, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

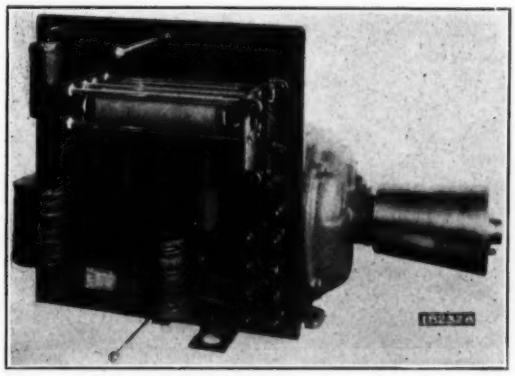

FIG. 1
View of section carbon pile speed regulator with cover removed from regulator panel

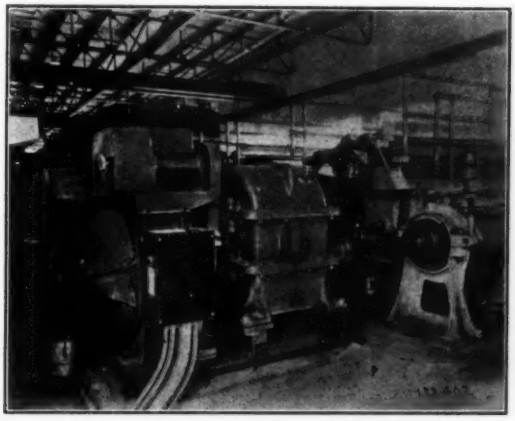

FIG. 2
Press section of the Olympic Forest Products machine showing carbon pile regulator mounted on top of section driving unit

The carbon pile section speed regulator was also designed to permit of continuous operation with a minimum of maintenance and attention. This result was accomplished by the use of the carbon pile type of automatically adjustable resistance to replace either the adjustable resistance effected by intermittent contacts of the make and break type or rheostats of the step by step type.

During the past year the design of this regulating equipment was perfected and the following installations made, all of which are now in successful operation:

Albemarle Chesapeake Corp., West Point, Virginia, 240 inch Kraft machine 100 to 800 feet per minute.

Bryant Paper Company, Kalamazoo, Michigan, 138 inch Book machine 200-600 feet per minute.

Riverside Fibre & Paper Company, Appleton, Wisc., 114 inch 114 Specialty machine 50-500 feet per minute.

National Paper Products Company, Carthage, New York, 1-132 inch Pulp sheet machine, 75 to 300 feet per minute.

Olympic Forest Products Company, Port Angeles, Wash., 1-156 inch Pulp sheet machine, 75 to 300 feet per minute.

In addition to the equipments which have been placed in successful operation the Westinghouse Company is also building or installing sectional drives with regulators of this type for the following machines.

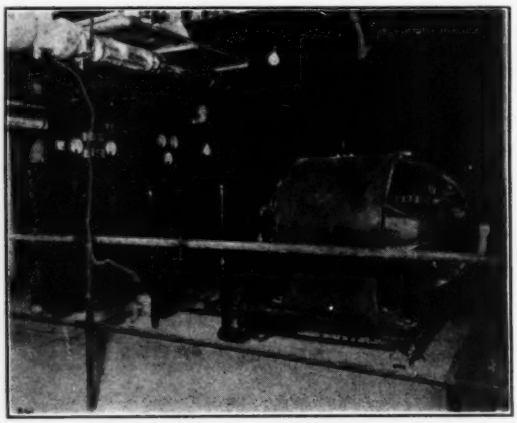

FIG. 3
View of multiple motor winder drive at the Grays Harbor Pulp & Paper Co., Hoquiam, Wash.

Brown Paper Company, Monroe, La., 178 inch Kraft Board machine, 75 to 750 feet per minute.

Crocker-Burbank, Fitchburg, Mass., 200 inch Book machine, 95 to 500 feet per minute.

Maine Seaboard Paper Company, Bucksport, Maine, 2-228 inch News machines 500 to 1500 feet per minute.

Crystal Tissue Company, Middletown, Ohio, 135 inch Tissue machine 125 to 500 feet per minute.

Oxford Paper Company, Rumford, Maine, 1-138 inch and 1-148 inch Book machine, 70 to 600 feet per minute.

This list of applications of the carbon pile section speed regulator serves to illustrate its wide adaptability for use on all types, sizes, and speeds of paper machines for either limited or wide speed range.

Motor Speed Regulator

The Westinghouse Company has been very active in the development of a suitable speed regulator for a single motor paper machine drive. As the result of development work along this line, the carbon pile voltage regulator, which has proved so satisfactory in industrial applications was modified to meet the requirements of this drive. This type of regulator provides uniform speed of operation of the paper machine over its entire speed range. The regulator is simple in its operation and requires little maintenance on the part of the mill operators. The Westinghouse Company has been applying this type of regulator since 1928 and during this time has made some important modifications in the original layout. By providing special compensated fields on the pilot generator, it has been possible to eliminate the exciter voltage regulator which was originally provided. The control has also been modified eliminating certain of the field relays, and changing the method of acceleration which permits of more uniform operation during the starting period. The elimination of the exciter voltage regulator and the control relays simplifies the control equipment considerably and reduces the amount of attention and maintenance required by the equipment.

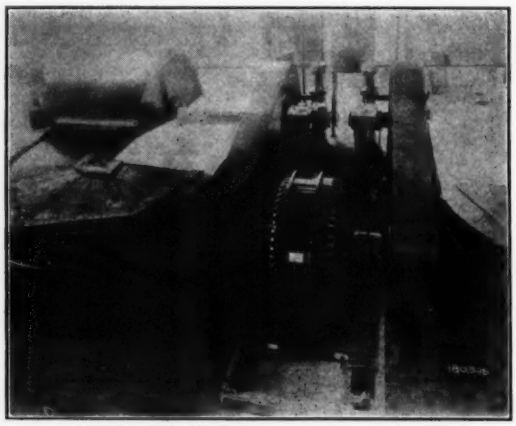

FIG. 5
View of single motor drive with speed regulating equipment installed at the Champion Coated Paper Co., showing motor and control with carbon pile regulating equipment mounted on control panel.

This improved type of single motor drive equipment has been applied to a large number of drives during the past year including:

3 drives for Crown Wilamette Paper Company, Camas, Wash.
10 drives for Champion Coated Paper Company, Hamilton, Ohio.
2 drives for Kimberly-Clark Corporation, Neenah, Wisc.

In connection with the variable voltage winder drives the Westinghouse Company has developed and successfully applied tension control to the unwinding stands of these equipments. This new type of tension control eliminates the usual mechanical brake with its excessive maintenance and its requirements for frequent manual adjustments. It also eliminates the human element from the tension adjustments by providing automatic tension control. Furthermore this new type of tension control permits operating the winder with less power input, as the energy ordinarily dissipated in the mechanical brake is converted to electrical energy which assists in driving the winder.

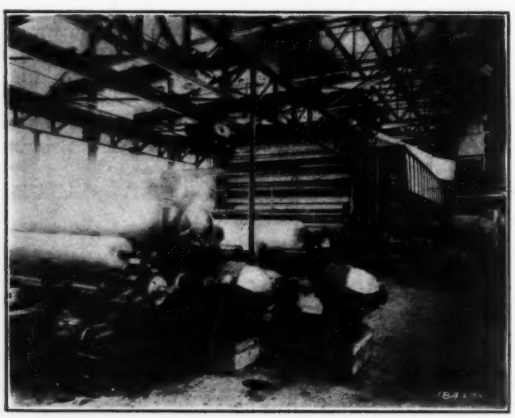

FIG. 4
View of 200 hp. type HR synchronous motor with double shaft extension driving two beaters at the mill of the Port Huron Sulphite & Paper Co., Port Huron, Mich.

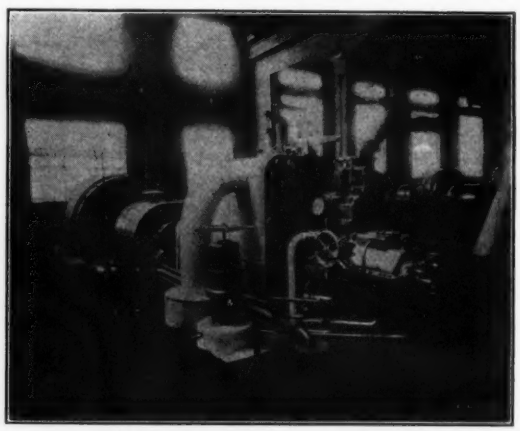

FIG. 6
View at mill of West Virginia Pulp & Paper Co., Tyrone, Pa., of 4500 KW. 25 cycle geared turbine generating units. Designed for steam conditions of 550 lbs. pressure 200 deg. superheat, 180 lbs. bleeder pressure and 20 lbs. back pressure.

Winder Drives

This type of tension control has been successfully applied to the unwinding stands of two high speed winders in the mill of the St. Lawrence Paper Company, Three Rivers, Quebec, and to a moderate speed winder in the mill of the Crocker-Burbank Company, Fitchburg, Mass. Similar type of equipment is also being applied to the two high speed winders on the 220-inch news machines of the Maine Seaboard Paper Company of Bucksport, Maine.

Operate With Two or Three Winding Drums

Many of the modern type winders operate with 2 or 4 winding drums which drums are provided with adjustable speed drives. Formerly the drives for these drums consisted of belts operating over cone pulleys or driven by slip belt. The Westinghouse Company has developed and successfully applied multiple motor drives to winders of this type. These multiple motor drives serve to operate the various winding drums independently thus eliminating the various belts, counter shafting, etc. The multiple motor winder drive also eliminates the necessity of making frequent adjustments of the speeds of the winding drums as the winding operation proceeds, since the individual motors automatically maintain the correct relative speeds, by virtue of their inherent characteristics.

Beater Drives

Until recently synchronous motors were not considered satisfactory for beater drives due in part to limitations in their starting and pull-in torque. The new lines of Westinghouse synchronous motors including types G, HG and HR develop ample torque to meet the requirements of this application and where improved power factor and high operating efficiency are important considerations, these motors can be economically applied. Usually 80 per cent power factor motors are applied both due to their increased capacity for power factor correction and to their higher starting and pull-in torque. In speeds as normally required for beater application, namely 450 to 600 r.p.m., these motors will develop approximately 125 per cent starting, 100 per cent pull-in and from 175 to 200 per cent pull-out torques.

Micarta Doctors

Micarta has proven to be an ideal material for doctor blades. Such blades have been successfully applied to the press sections on the wet end of the paper machine. These blades have also been successfully applied to the receiving dryer on crepeing machines. The Micarta Blade gives better operating results with reduced maintenance and attention and these blades are now in use in a large number of paper mills.

Special Governors and Bleeder Devices

The paper industry has recognized the advantage of high pressure, high temperature steam for conversion, through the proper types of steam turbine units to electrical energy. To meet this demand the Westinghouse Company has developed special governors and bleeder devices, and modified their designs so as to enable the company to meet the requirements of the paper mills. Such turbines include, straight condensing types, single or multi stage bleeders, of either the non condensing or condensing type. The Westinghouse Company is in a position to adequately meet any of the requirements of the paper mills and during the past year has built and installed many units of these various types for important paper mill customers.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B. Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Pulp Testing

Screen Analysis as an Aid in Pulp Evaluation. E. R. Schafer and L. A. Carpenter. Forest Products Lab., Madison, Wis. PAPER TRADE J. 90, No. 19, 57-61 (May 8, 1930); Tech. Assn. Papers Series 13, No. 1, 267-271 (May, 1930).—A method of determining the amounts of the various-sized aggregates in a pulp has been devised, involving the use of a diaphragm flat plate screen provided with a series of interchangeable plates. The method is of service in evaluating the quality of coarse fibers used for insulating boards, and of more finely disintegrated fibers and pulps such as groundwood and chemical pulps, in which case a series of various mesh wires are used instead of the screen plates. The difficulty inherent to the determination of the average fiber length of groundwood due to inability of obtaining the relative quantities of the shorter fibers is overcome by measuring the average fiber length in each of the fractions separated by screen analysis, it being assumed that the average diameter is approximately the same in all fractions and that all fibers have the same specific gravity. The "Coarseness modulus" is defined as the sum of the cumulative percentages of the screen analysis (omitting the fraction that passes the finest screen divided by 100; while it cannot be used independently of other tests for the determination of quality, it is believed to be useful in evaluating pulps of the same class as to average fiber length.—A.P.-C.

Copper Number Test. Jessie E. Minor. Rag Content Paper Mfrs.' Assn. Cellulose, 1, 77-79 (April, 1930).—The significance of the copper number test is discussed from the standpoint of its indication of the degradation of cellulose and its probable permanence, and the three types of methods for its determination (Schwalbe-Hügglund, Schwalbe-Braidy and Schwalbe-Gault) are briefly outlined. The Schwalbe-Braidy has been adopted by the Rag Content Paper Mfrs. and the technic followed is described.—A.P.-C.

Roe Chlorine Number. D. Johansson. Svensk Pappers-Tidning 33,278-82 (1930).—The Roe chlorine number (grams Cl_2 gas absorbed per 100 grams pulp) is a quick, rational method of determining the extent to which pulp has been purified. Values vary from 2% for easy bleaching pulps to 13% for strong pulps. The chlorine number closely approximates the numerical value for lignin content, and also indicates the amount of Cross and Bevan cellulose content of pulps. Bleach requirements can be estimated by using a factor of 4 for strong sulphites and a factor of 6 for sulphate pulps.—C.J.E.P.

Strength Testing Pulp. W. Humm, Solothurn, Switzerland. Papier-Fabr. 28, No. 8, 116-119 (Feb. 23, 1930).—By means of the stamp or the punch method of strength determination, conclusions regarding the individual fibers are drawn. Apparatus and methods are described and the results are compared with the tearing length.—J.F.O.

Determination of Moisture Content of Paper and Pulp on the Machine. W. Schmid, Zellstoff Papier 10, No. 1, 31-34 (Jan. 1930).—A discussion of a continuous moisture determination apparatus, by means of the passage of an electric current through

the paper or pulp, its advantages and the factors influencing the apparatus are given.—J.F.O.

New Methods for the Determination of the Moisture Content of Paper, Board and Pulp. Max Knopff, Hannover, Germany. Wochbl. Papierfabr 61, No. 11, 416-418 (March 15, 1930).—By the use of the dielectric constant, after setting the instrument for a certain grade of pulp, an accuracy of .08 per cent can be attained. By measuring the condensate from the materials and by adding acetic acid and titrating the solution with caustic after it has passed through the material. Another method is by measuring the temperature rise when sulphuric acid is added to the material containing water.—J.F.O.

Determination of the Resin Fats in Pulp. Papier-Fabo. 28, No. 11, 183-6 (March 16, 1930).—Description of apparatus and methods given. Discussion by various members.—J.F.O.

Apparatus for the Measurement of the Deflection or Bend of Paper Under Various Moisture Conditions. Dipl. Ing. D. Bercovitz. Zellstoff Papier 10, No. 1, 40 (Jan., 1930).—Description of apparatus and methods.—J.F.O.

Report Concerning the Meeting of the Committee for Fiber Analysis. Papier-Fabr. 28, No. 10, 158-162 (March 9, 1930).—The purpose and aim of the organization is given.—J.F.O.

Paper Testing

Lecture on the Methods of Paper Analysis Given by Prof. Dr. Korn at the Meeting of the Berlin Section of the Verein Der Zellstoff un Pap. Chem und Ing.. Papier-Fabr. 28, No. 15, 249-255 (Feb. 6, 1930).—A comprehensive summary and review of the methods used in the testing of paper such as fiber analysis, bursting strength, pH testing, durability against light, the life of the paper, gloss, wetness, transparency, etc. Literature and the source of information given.—J.F.O.

Testing the Bursting Strength of Paper, with Special Reference to the Schopper-Dalen Bursting Tester. Bruno Schulze, State material testing laboratories, Berlin-Dahlem, Germany. Papier-Fabr. 28, No. 16, 267-71 (April 20, 1930).—A description of the existing apparatus and their characteristics and faults. The Schopper-Dalen working by compressed air, eliminates the objection of the other apparatus.—J.F.O.

Testing the Bursting Strength of Paper with Special Reference to the Schopper Dalen Tester. Dr. Bruno Schulze. Wochbl. Papierfabr. 61, No. 9, 276-281 (March 1, 1930).—A description of the Schopper Dalen tester and a comparison and its advantages with other testers discussed. Also the factors influencing the test with the various apparatus.—J.F.O.

Moisture Testing of a Web of Paper or Pulp. S. Schmid. Papeir-Fabr. 28, No. 15, 257-8 (Feb. 6, 1930).—The discussion of a new kind of continuous moisture tester for paper and pulp with a critical opinion given. The sheet passes between grooved rolls, so placed that the elevations on the one roll revolve in the grooves of the other. The principle being that the more moisture in the paper, the less stiff it will be and the rolls will thus come closer together, which motion is recorded.—J.F.O.

Moisture Tester for Paper and Pulp. T. Kalle, Säffle, Sweden. Swedish pat. 68,712 (April 13, 1927).—The web of stock whose moisture content is to be determined, passes between two grooved rolls, which lie over one another so that a groove in one lies over the raised portion of the other. By a change in moisture content, the web of stock shows a difference in pliability and is thus more or less pressed into the grooves of the rolls. This motion is carried to an indicating device and there registered.—J.F.O.

How One Can Hold the Basis Weight on the Paper Machine Continuously Uniform. Wochbl. Papierfabr. 61, No. 17, 543-6 (April 26, 1930).—A practical treatise on the subject, dealing with factors which are common knowledge to paper makers, but perhaps ignored.—J.F.O.

Method for Determining the Amount of Dust from Printing Papers. Prof Dr. E. H. Riesenfeld & Dr. T. Hamburger. Chemical Lab. of Ullstein, A.G. Papier-Fabr. 28, No. 8, 119 (Feb. 23, 1930).—The paper is fastened to the rim of a revolving wheel, a razor blade is so placed so as to just touch the surface of the paper and thus removing the dust and fibers sticking out from the paper. The paper is weighed before and after. The humidity is maintained constant during the testing. It is yet impossible to compare results obtained with those from other laboratories.—J.F.O.

Photographic Determination of the Whiteness of Paper. Prof. Dr. A. Klughardt, Dresden, Germany. Papier-Fabr. 28, No. 7, 104 (Feb. 16, 1930).—A reply to the criticisms of Prof. Klughardts method.—J.F.O.

Drying

Three-Stage System and Apparatus for Drying Paper. J. O. Ross Eng. Corp. Eng. pat. 324,945 (Nov. 20, 1928).—High-pressure steam after passing through a heating apparatus used in the second stage passes into drying cylinders used in the third stage, and the superheated steam evolved from the moisture in the paper during the second stage is used for preliminary heating in the first stage.—A.P.-C.

"Ter-Mer" Centrifuge for the Separation of Liquors and for the Dewatering of Stock, in the Manufacture of Pulp and Paper. Wochbl. Papierfabr. 61, No. 8, 245 (Feb. 22, 1930).—A description of the above machine and its advantages are discussed, with its special adaptation to the sulphate industry to displace diffussors, etc.—J.F.O.

Process for De-watering Stock Containing Such. Richard Kastner and Herbert Schmolka, Steyermuh, Austria. Austrian pat. 115,901 (Oct. 15, 1927).—J.F.O.

Arrangement for the Drying or Moistening of Hanging Material, Especially Board, Rope, etc. Benno Schilde Mascginenbau A. G. Hersfeld, Germany. German pat. 494,984 (Feb. 5, 1927).—J.F.O.

Device for Driving a Group of Drying Cylinders on a Paper Machine by Means of a Rope or Belt. J. M. Voith, Mascginenfabrik, Heidenheim, Germany. German pat. 491,265 (Nov. 3, 1925)—J.F.O.

Arrangement for Revolving or Surging Vacuum Drum Dryers. A. E. Johnson, Lidingo, Sweden. Norwegian pat. 47,225 (March 22, 1928).—A series of heat bodies loosely inserted and radially arranged, are attached to the drums.—J.F.O.

Drying Machine for the Drying of Colored Papers. Erwin Hennefsen, Munich, Germany. German pat. 491,756 (Oct. 13, 1926).—In an enclosed drying chamber, in which warm air from above is blown in the usual manner upon the sheet passing through the drier, are drying the drums provided with wind vanes around which the sheet is run in such a manner that the colored side of the sheet lies outside on the first two drums and inside on the next two.—J.F.O.

Drying Apparatus. O. Nordstrom, Sundsvall, Sweden. Swedish pat. 68,686 (Dec. 9, 1926).—The drying apparatus consists of horizontal lying drying chambers with an arrangement for the moving of the dried material, (wood chips) through which hot gases are blown directly across the material being dried, the gases being obtained from an adjacent room or chamber.—J.F.O.

Process and Arrangement for the Drying in a Hanging Position of Materials Formed on a Table, Especially Board and Like Materials. "Reform" Gesellschaft für Heiz und Throckenanlagen, m.b.H. Gorlitz, Germany. German pat. 487,822 (Sept. 4, 1925).—A single board hangs free in the space between two vertical heating plates.—J.F.O.

Paper and Board Drying by Means of Warm Air, Cheaply Produced. Beber Rossflau, Wochbl. Papierfabr. 61, No. 8, 247 (Feb. 22, 1930).—The air used for the drying is heated directly in a heat interchanger by the hot burnt gases and not from the steam produced therefrom.—J.F.O.

White Papers From Southern Pines*

I—Pulping Loblolly Pine for Strong, Easy-bleaching Sulphate Pulp

By C. E. Curran[1a] and M. W. Bray[1b]

This article reports experiments that resulted in a method for producing strong white pulps and papers from loblolly pine—a typical southern yellow pine. The work, which was begun in 1926 under a special appropriation made by Congress, is being extended to the other species of the southern yellow pines and also to southern hardwoods.

The process developed, which has been briefly described in previous publications,[2, 3] consists in certain modifications of the standard sulphate pulping process combined with a two-stage bleaching method in which the pulp is first chlorinated with chlorine water and subsequently bleached with hypochlorite. It appears to involve no radical departures from standard sulphate pulping or bleaching practice. The data presented in this article have to do only with the pulping methods investigated; the experiments dealing with the bleaching of the pulps will be presented in a later article.

At the outset of this work the assumption was made that the best chance of success was to develop a strong pulp that could be bleached without serious degradation, rather than to try to adapt a given bleaching method to any pulp regardless of the way in which it had been produced—in other words, that the secret of a strong white pulp from pine was as much a matter of pulping technic as of bleaching practice. As already stated, modifications of both procedures were found necessary.

The selection of the sulphate process in this investigation was made largely by elimination.

Michel-Jaffard[4] had shown that Bordeaux pine, which is quite similar to the southern yellow pines, was poorly suited to pulping by the acid sulphite process. Earlier experiments at the Forest Products Laboratory[5] had shown the same tendency. McKee and Cable[6] found that the sapwood of the southern yellow pines could be reduced by the sulphite process but that the heartwood was extremely difficult to pulp; lacking a separation of heatwood and sapwood it was impossible to produce a sulphite pulp free from specks and shives. For the time being[7] the sulphite process seemed to offer no solution to the problem.

Attention was therefore directed to the two alkaline processes, the soda and the sulphate. The soda process was first applied, but none of the experiments[8] resulted in a strong and, at the same time, an easy-bleaching pulp, although all possibilities were not exhausted. On the other hand, it had been noted in other instances,[8,9] and was further confirmed in this work, that replacement of some of the caustic soda by sodium sulphide resulted in improved color of the unbleached pulps over pulps prepared through the use of caustic soda alone; gave stronger pulps, both bleached and unbleached; and resulted in chemical properties[8] indicative of lower bleach requirements. The major emphasis was accordingly placed upon experiments employing the sulphate process.

The experimental work was divided into three phases:

1. A series of preliminary digestions in a small bomb autoclave[8,10] where the effect of independently varying temperature, time of reaction, chemical concentration, and ratio of chemical to wood used, on yield, and on chemical characteristics of the resulting residue could be observed.

2. A series of larger autoclave digestions, using conditions developed in the bomb-scale work and deemed of promise. The yields from these larger-scale digestions were sufficient to permit physical or strength evaluations of the pulps, as well as chemical analyses, and for bleaching experiments.

3. A series of semicommercial experiments in which approximately 50 pounds of pulp was produced, bleached, and evaluated for strength and other properties.

The data presented in this article are limited to the large autoclave and semicommercial scale experiments above mentioned. The general results of the bomb-scale work will be discussed but details of these experiments will be published later.

In the preliminary bomb-scale pulping work the total residue, which was taken as the yield, could be varied according to the manipulation of the previously mentioned factors of temperature, reaction time, and so forth. This residue was examined for cellulose, lignin, alpha-cellulose, and chlorine absorption; the absorption value was assumed to indicate the probable bleach requirement of the pulp.[11] In the course of this work it was noticed, particularly in different digestions in which the yield was the same while the ratio of chemical to wood had been varied, that the residues requiring the least chlorine for purification were obtained through use of the higher ratio of chemical to wood or where the concentration was varied and the chemical ratio maintained constant. These observations were the basis of the larger autoclave and semicommercial experiments.

Materials and Methods

Materials

The wood used in the large-scale experiments was taken from two separate shipments of loblolly pine *(Pinus taeda)*, designated in the laboratory records as Nos. 1005 and 1173, which had been sent from Wiggins, S. C., and Clairmont, S. C., respectively. Both shipments, which had been stored respectively four and two years before use, had become somewhat blue stained but otherwise appeared to be in sound condition.

The wood from shipment No. 1005 was not chemically analyzed, but that from shipment No. 1173 was examined in accordance with the methods[12] standard at the Forest Products Laboratory and showed the following characteristics:

	Per cent
Solubility in hot water	3.4
Solubility in 1 per cent NaOH	14.8
Solubility in aclohol-benzene mixture	2.7
Cellulose	60.1
Chlorine consumed in isolation of cellulose	38.0
Lignin	32.0
Total pentosans	12.3

* Presented at the annual meeting of TAPPI, Pennsylvania Hotel, New York, N. Y., February 18, 1930.

[1a] Member TAPPI, Principle Chemist, Forest Products Laboratory, Madison, Wis.

[1b] Member TAPPI, Chemist, Forest Products Laboratory, Madison, Wis.

[2] C. E. Curran, Paper Trade J. 90, No. 3, 49 (Jan. 16, 1930).

[3] C. E. Curran and M. W. Bray, Ind. Eng. Chem. 22, 830 (1930).

[4] Michel-Jaffard, Paper Trade J. 79, No. 14, T.S. 123, (Oct. 2, 1924).

[5] Wells and Rue, "The Suitability of American Woods for Paper Pulp." U. S. Dept. Agr. Bul. 1485 (May, 1927).

[6] McKee and Cable, Paper Trade J. 78, No. 10, 53 (March 6, 1924); 78, No. 11, 47 (March 13, 1924); 80, No. 17, 41 (April 23, 1925).

[7] The sulphite process may offer a solution for pulp wood containing little or no heartwood and experiments in this connection are now under way at the Forest Products Laboratory. Furthermore, employing soda as a base to replace lime in sulphite cooking liquors also eliminates somewhat the objections to the sulphite process with southern yellow pines, and this procedure is in use commercially. The sulphite process also offers excellent possibilities in the pulping of various southern hardwoods. Cf. W. H. Monsson, Paper Trade J., April 26, 1928; C. E. Curran, Paper Trade J., January 17, 1929. The pulps produced from these woods can serve, for instance, as a valuable component of the furnish in the manufacture of book and other papers where close formation, finish, and opacity are needed; a strong white pulp from the pines coud well form the major part of such a furnish.

[8] These data are as yet unpublished.

[9] S. D. Wells, Paper, 27, No. 12, 16 (Nov. 24, 1920); Southern Lumberman 98, 1318 (Dec. 25, 1920); Sci. Am. No. 439 (May, 1921).

[10] M. W. Bray, Paper Trade J., 87, No. 23, 64 (Dec. 6, 1928).

[11] R. B. Roe, Ind. Eng. Chem. 16, No. 8, 808 (1924).

[12] M. W. Bray, Paper Trade J., 87, No. 25, T. S. 241, (Dec. 20, 1928).

TABLE 1—CHART OF THE RESULTS OF PULPING STUDIES ON LOBLOLLY PINE BY THE SULPHATE PROCESS

Digestion number	Weight of wood charged: Moist	Weight of wood charged: Oven dry	Cooking chemical: Per 100 pounds oven-dry wood: Total chemical added	Per 100 pounds oven-dry wood: NaOH	Per 100 pounds oven-dry wood: Na2S	Per 100 pounds oven-dry wood: Volume	Concentration: Total	Concentration: NaOH	Concentration: Na2S	Temperature	Time of digestion: To maximum temperature	Time of digestion: At maximum temperature	Black liquor, ratio of combined to total alkali	Yield of crude pulp based on oven dry weight of chips charged	Strength development data on unbleached pulp Relative humidity 65 per cent Temperature 72° F.: Time in pebble mill	Weight per ream 24x36—500 sheets	Bursting strength factor	Stretch average	Tensile strength breaking length average	Double folds average	Elmendorf tearing test, average
	Pounds	Pounds	Pounds	Pounds	Pounds	Gallons	Grams per liter			°C.	Hours	Hours	Per cent	Per cent	Minutes	Pounds	Points per pound per ream	Per cent	Meters		Grams per pound per ream
	Series 1.—Effect of varying the ratio of chemical to wood at constant volume																				
37	5.90	5.13	25.0	18.7	6.3	30	100.0	75.0	25.0	170*	1½	2½	69.0	41.1	40	45.6	0.73	7.1	3392	33	3.1
															80	47.7	0.95	9.1	4165	283	2.8
															120	48.0	0.86	7.9	4149	188	2.6
															160	51.7	0.66	5.0	3933	189	2.0
38	6.10	5.31	30.0	22.5	7.5	30	120.0	90.0	30.0	170	1½	2½	73.4	37.3	40	43.6	0.67	7.6	3651	46	2.4
															80	44.9	0.71	7.4	3809	60	1.9
															120	48.0	0.47	3.9	3750	33	1.6
															160	49.7	0.48	3.1	3419	53	1.3
39	6.07	5.28	34.2	25.6	8.6	30	136.8	102.6	34.2	170	1½	2½	71.2	34.5	40	42.9	0.60	7.3	3250	14	1.4
															80	43.2	0.36	3.4	3022	9	1.0
															120	42.9	0.35	3.0	2880	12	0.8
															160	44.6	0.37	2.8	4027	8	0.6
42	6.00	5.21	34.2	25.6	8.6	30	136.8	102.6	34.2	160	1½	2½	64.0	39.9	40	48.7	0.62	8.6	2971	57	2.6
															80	47.0	0.89	9.9	3973	265	2.4
															120	49.4	0.67	5.5	3850	99	1.7
															160	53.8	0.61	4.1	3901	235	1.3
	Series 2.—Effect of varying the concentration of chemical																				
38	6.10	5.31	30.0	22.5	7.5	30	120.0	90.0	30.0	170	1½	2½	73.4	37.3	40	43.6	0.67	7.6	3651	46	2.4
															80	44.9	0.71	7.4	3809	60	1.9
															120	48.0	0.47	3.9	3750	33	1.6
															160	49.7	0.48	3.1	3419	53	1.3
40	6.00	5.21	30.0	22.5	7.5	50.5	71.2	53.4	17.8	170	1½	2½	72.4	42.5	40	46.6	0.82	9.8	3244	154	3.0
															80	50.4	0.96	10.6	3925	385	2.8
															120	46.3	0.93	7.3	3657	361	2.1
															160	51.7	0.74	5.3	3534	207	1.8
39	6.07	5.28	34.2	25.6	8.6	30	136.8	102.6	34.2	170	1½	2½	71.2	34.5	40	42.9	0.60	7.3	3250	14	1.4
															80	43.2	0.36	3.4	3022	9	1.0
															120	42.9	0.35	3.0	2880	12	0.8
															160	44.6	0.37	2.8	4027	8	0.6
41	6.00	5.21	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	2½	68.5	38.6	40	46.3	0.67	8.3	3817	107	2.9
															80	47.0	0.68	8.0	3960	293	2.2
															120	48.3	0.67	6.6	3131	40	1.7
															160	52.8	0.49	5.1	3495	35	1.3
	Series 3.—Effect of varying the temperature of digestion																				
40	6.00	5.21	30.0	22.5	7.5	50.5	71.2	53.4	17.8	170	1½	2½	72.4	42.5	40	46.6	0.82	9.8	3244	154	3.0
															80	50.4	0.96	10.6	3925	385	2.8
															120	46.3	0.93	7.3	3657	361	2.1
															160	51.7	0.74	5.3	3534	207	1.8
43	6.00	5.31	30.0	22.5	7.5	52.0	69.3	52.0	17.3	160	1½	2½	67.2	43.2	40	49.7	0.64	7.3	3080	56	2.8
															80	51.1	0.95	9.5	4162	426	3.2
															120	48.3	1.13	11.4	4054	471	2.9
															160	49.0	0.97	13.8	3916	523	2.6
41	6.00	5.21	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	2½	68.5	38.6	40	46.3	0.67	8.3	3817	107	2.9
															80	47.0	0.68	8.0	3960	293	2.2
															120	48.3	0.67	6.6	3131	40	1.7
															160	52.8	0.49	5.1	3495	35	1.3
44	6.00	5.31	34.2	25.6	8.6	48.3	85.0	63.8	21.2	160	1½	2½	58.3	41.7	40	47.7	0.60	6.9	3059	37	3.1
															80	49.0	0.99	9.4	4386	314	2.7
															120	52.8	1.02	11.9	3751	431	2.6
															160	51.7	0.95	8.4	3878	145	2.2
45	6.00	5.31	34.2	25.6	8.6	48.3	85.0	63.8	21.2	150	1½	2½	53.0	47.5	40	44.9	0.55	6.8	2456	14	2.4
															80	48.7	0.95	9.1	3646	189	3.2
															120	48.3	1.02	10.3	4161	387	2.6
															160	45.3	0.99	9.0	4229	270	2.3
	Series 4.—Effect of varying the time of digestion																				
41	6.00	5.21	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	2½	68.5	38.6	40	46.3	0.67	8.3	3817	107	2.9
															80	47.0	0.68	8.0	3960	293	2.2
															120	48.3	0.67	6.6	3131	40	1.7
															160	52.8	0.49	5.1	3495	35	1.3
48	6.00	5.35	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	2	...	37.2	40	50.7	0.71	7.9	3116	103	3.2
															80	49.4	0.97	10.0	4310	196	2.6
															120	50.4	0.79	8.4	3837	195	2.2
															160	47.3	0.73	5.0	4264	156	1.7
47	6.00	5.35	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	1½	...	38.3	40	48.7	0.69	5.4	2884	63	3.1
															80	49.7	0.92	9.4	3711	199	2.7
															120	50.7	0.91	9.1	3901	204	2.4
															160	53.8	0.79	6.3	4220	184	2.1
46	6.00	5.35	34.2	25.6	8.6	48.3	85.0	63.8	21.2	170	1½	1	...	41.2	40	46.6	0.57	6.3	2900	90	3.2
															80	48.7	0.90	9.3	4660	304	3.3
															120	48.7	0.96	10.1	3630	246	3.1
															160	51.1	0.95	11.4	4365	434	2.6
	Semi-commercial trials																				
2252	104.0	90.0	34.2	25.6	8.6	58.6	70.0	52.5	17.5	170‡	1¾	2¼	51.8	41.4§	40	45.6	0.58	7.4	2698	26	2.6
															80	46.3	0.94	9.5	3603	104	2.6
															120	50.7	1.02	9.9	3988	503	2.2
															160	51.1	0.85	7.4	4264	220	1.8
	Machine run No. 1 waterleaf																				
2253	104.0	90.0	34.2	25.6	8.6	58.6	70.0	52.5	17.5	170‡	1½	2½	56.6	39.9§	40	51.0	0.62	10.1	3155	51	3.1
	Machine run No. 2 waterleaf														80	53.4	0.88	9.8	4432	344	3.2
															120	53.1	0.96	10.9	4382	413	2.6
															160	56.2	0.89	9.8	4305	433	2.3
2254	98.8	90.0	34.2	25.6	8.6	58.6	70.0	52.5	17.5	170‡	1½	2¼	52.8	42.2§	40	51.4	0.57	7.4	2770	47	3.3
															80	53.1	0.89	12.0	3675	393	3.5
															120	53.4	1.07	12.6	4775	711	3.0
															160	50.1	0.97	11.3	4043	527	2.6

Machine Run No. 1 waterleaf
Machine run No. 2 waterleaf—jordaned—calendered
Machine run No. 5 contained 15 per cent soda pulp. (Clay, size, alume and dye)

* Bleached in first stage with chlorine equivalent to 12 per cent bleach powder followed in second stage with 4 per cent of bleaching powder.
† Bleached in first stage with chlorine equivalent to 11 per cent bleach powder followed in second stage with 8 per cent of bleaching powder.
‡ Maximum internal pressure 105 pounds per square inch.
§ Not over 0.3 per cent of screenings.

Test of bleach requirement				Strength development date on bleached pulp Relative humidity 65 per cent Temperature 72° F.							
	Ives color readings										
Amount of bleach added (35 per cent chlorine) based on oven-dry pulp	Red	Green	Blue	Bleach used (35 per cent chlorine)	Time in pebble mill	Weight per ream 24x36—500 sheets	Bursting strength factor	Breaking length average	Double folds average	Elmendorf tearing test average
Per cent	Parts	Parts	Parts	Per cent ratio	Minutes	Pounds	Points per pound per ream to wood	Meters	at constant	Grams per pound per ream volume
Series 1.—Effect of varying the										
Unbleached	40	30	25		20	45.6	0.59	2864	8	1.3
20	85	80	72	20	40	43.2	0.55	3271	10	1.2
					60	43.6	0.45	2944	10	0.8
					80	44.6	0.46	3790	13	0.7
Unbleached	42	31	25		20	43.9	0.58	2809	9	1.2
20	87	77	70	20	40	39.5	0.44	3380	8	0.9
					60	...	...	....	..	..
					80	...	...	....	..	..
Unbleached	41	31	27							
18	79	70	63	18	20	40.1	0.39	3098	3	0.8
Unbleached	47	34	26							
15.0	75	65	53							
17.5	81	72	62							
20.0	82	78	68							
Series 2.—Effect of varying the concentration of chemical										
Unbleached	42	31	25							
20	87	77	70							
Unbleached	39	29	23							
15.0	79	72	59							
17.5	83	77	70							
20.0	90	80	75							
Unbleached	41	31	27							
18	79	70	63							
Unbleached	46	39	29							
15.0	85	75	68							
17.5	86	80	73							
20.0	89	85	80							
Series 3.—Effect of varying the temperature of digestion										
Unbleached	39	29	23							
15.0	79	72	59							
17.5	83	77	70							
20.0	90	80	75							
Unbleached	44	32	25							
20	68	54	40							
25	79	68	57							
30	85	76	65							
Unbleached	46	39	29							
15.0	85	75	68							
17.5	86	80	73							
20.0	89	85	80							
Unbleached	47	36	26							
20	71	56	45							
25	81	69	55							
30	88	78	68							
Unbleached	43	30	20							
35	63	47	33							
Series 4.—Effect of varying the time of digestion										
Unbleached	46	39	29							
17.5	86	80	73							
20.0	89	85	80							
22.5	89	85	80							
Unbleached	47	35	30							
20.0	88	80	72							
22.5	92	86	76							
25.0	92	86	78							
Unbleached	48	34	30							
20.0	88	78	67							
25.0	90	85	77							
30.0	92	88	81							
Unbleached	49	37	32							
20	83	69	57							
25	88	76	65							
30	92	83	71							
35	92	84	78							
Semi-commercial trials										
Unbleached	50	39	34	20	20	47.3	0.66	3488	22	1.7
17.5	88	81	72		40	41.5	0.69	3615	24	1.4
20.0	90	84	78		60	41.2	0.59	3990	26	0.9
22.5	92	86	79		80	47.0	0.50	4107	20	0.9
25.0	92	86	82							
20.0	84	77	70	20	..	47.2	0.57	4842	16	1.6
20.0	71	65	67	20	..	50.4	0.52	4975	21	1.8
Unbleached	48	37	32							
17.5	90	79	68	16*	40	55.5	0.83	3171	164	3.4
20.0	90	82	74		60	50.7	1.01	3880	474	3.2
22.5	92	85	77		80	52.1	1.08	4086	417	2.7
25.0	92	86	79		100	49.4	1.01	3931	544	2.7
16.0*	91	86	80							
Unbleached	47	37	31							
20.0	89	79	70							
22.5	88	83	76							
25.0	90	85	79							
Unbleached	47	37	31	..	..	52.0	0.69	4806	586	3.0
	83	76	68	27	..	65.6	0.56	4427	178	1.7
	85	83	83	19†	..	38.6	0.50	4747	30	1.0

Loblolly pine has an average weight of about 30 pounds per cubic foot (weight oven-dry and volume when green) and an average fiber length of 3 millimeters.[5] Its range is the south Atlantic and Gulf States from New Jersey to central Florida, westward to eastern Texas, and northward to Oklahoma, Arkansas, and Tennessee. This pine is important as a second-growth timber because of its rapid growth.

Preparation Of Materials

The loblolly pine was received at the laboratory as rough, 4-foot bolts and as logs ranging from 4 to 15 inches in diameter which were immediately cut to 4-foot lengths for storage. Prior to pulping the sticks were barked and then chipped in a small laboratory chipper, which produces chips substantially the size and the shape of those customary in commercial operation. The sawdust, the large knots, and the oversized chips were removed by screening.

Experimental Procedure

In the autoclave[13] digestions approximately 5 pounds of wood (oven-dry basis) were pulped in each experiment. This resulted in sufficient pulp for both chemical and physical tests. Only chips from shipment 1173 were used in the autoclave experiments so that all the data were strictly comparable, being based on the same raw material. Later, in applying the information gained from the autoclave digestions, 90 to 100 pounds of wood was cooked at one time in a rotating digester.[14] In these larger scale experiments both shipments of wood were used and the results compared, but wood from the two sources was not mixed and pulped together.

Indirect heating was used entirely for the autoclave digestions, but in the semicommercial pulping trials such heating was confined to the temperature-rise period of 1-½ hours, after which direct steam heating maintained the maximum temperature of 170 deg. C. Relief was not used with the small autoclaves, but in the semicommercial digestions it was employed to assist in the regulation of temperature.

When the small autoclave digestions had proceeded for a predetermined period, the contents of the digester was dumped and the pulped chips thoroughly washed. The softened chips were then broken up by screening through a small diaphragm screen ("cuts" of 0.020 of an inch were used) and the excess water pressed out. The pressed cake of pulp was then broken up, weighed in air-tight aluminum cans, and sampled for moisture. From these data the yield of pulp was determined. In the tables, all of the results are expressed as per cent of oven-dry pulp based on the weight, oven-dry, of the wood charged.

The procedure for the semicommercial digestions was essentially the same as that for the autoclave trials, although the greater size of the charge required minor modifications, such for example, as "blowing" the pulp rather than dumping, and in the method used for determination of the yields. The yield was determined from the total weight of pulp run into a wet lap of known moisture content. The yield data are reported as oven-dry pulp in percentage of the weight of oven-dry wood charged.

The bleach requirement of the pulps was determined by actually bleaching out a small sample with bleaching-powder solution in accordance with the Forest Products Laboratory method.

The color of the bleached and the unbleached pulps was determined by means of the Ives tint-photometer.[15] The results are recorded as scale readings of this instrument.

The strength-development characteristics of the crude pulps were determined by means of the standard pebble-mill method employed at the laboratory. Sufficient test sheets were made to permit testing for bursting, folding, tensile, and tearing strength. The sheets were dried in a loft at approximately 90 deg. F. and were seasoned and tested in a room in which the temperature and relative humidity are maintained at 72 deg. F. and 65 per cent, respectively.

[13] For detailed description and photograph of autoclaves see Paper Trade J., 86, No. 3, 51 (Jan. 19, 1928).
[14] For description ant drawings of this digester see Paper Trade J. 76, No. 24, 49 (Apr. 13, 1923); U. S. D. A. Bulletin No. 1485.
[15] P. K. Baird. Paper Trade J. 84, No. 17, 48 (Apr. 28, 1927).

Pulping Experiments

Four series—a total of 12 digestions—were made with the autoclaves, each series dealing with the effect of varying one factor. These were followed by three additional digestions in the semi-commercial size digester.

The pulping, strength, and bleaching data for the several series are given in Table 1, while the data showing the chemical composition of several typical pulps produced are included in Table 2.

Discussion of Results

SERIES 1.—EFFECT ON THE YIELD AND PHYSICAL PROPERTIES OF THE PULPS OF VARYING THE RATIO OF CHEMICAL TO WOOD AT CONSTANT VOLUME

Previously published data indicated that where two pulps of the same yield were produced, one with the use of a low ratio and a second with a high ratio of chemical to wood, the second would require less chlorine to isolate its cellulose. Assuming the chlorine consumption to be an indication of the bleach requirement[11] of the pulps obtained from any one species and method of pulping, a series of three digestions (Nos. 37, 38, and 39) was made in the 3.7 gallon autoclaves to show the effect of varying these ratios from 25 to 34.2 per cent in steps approximating 5 pounds of chemical per hundred pounds of oven-dry wood charged. These digestions were made at a maximum temperature of 170 deg. C. with indirect heating; consequently the dilution usual in mill practice, caused by direct steam heating, was eliminated. The total duration of the digestion was 4 hours; a fixed period of 1½ hours for initial warming and a uniform rise of temperature to the maximum value were employed. Because the digestions were made at a constant volume of cooking liquor, namely, 30 gallons per hundred pounds of oven-dry wood charged, increasing the ratio of chemical to wood automatically increased the concentration of chemicals in the cooking liquor.

TABLE 2.—CHART OF ANALYTICAL DATA ON SELECTED LOBLOLLY PINE SULPHATE PULPS; A RATIO OF NaOH TO Na_2S OF 3 TO 1 WAS USED.

Cook No.	Cooking chemical: Total added (Based on oven-dry weight of wood)	Concentration	Volume	Maximum temperature of digestion	Based on oven-dry weight of residue: Yield of pulp	Lignin	Cellulose	Alpha-cellulose	Chlorine consumed
	Per cent	Grams/liter	Gallons	°C	Per cent	Per cent	Per cent	Per cent	Per cent
Series 1.—Effect of varying the ratio of chemiial to wood at constant volume									
A—37	25.0	100.0	30.0	170	41.1	4.5	96.7	90.4	7.8
A—38	30.0	120.0	30.0	170	37.3	3.6	96.4	90.0	7.5
A—39	34.2	136.8	30.0	170	34.5	3.0	97.7	87.6	7.2
A—42	34.2	136.8	30.0	160	39.9	3.5	97.4	88.2	5.9
Series 2.—Effect of varying the concentration of chemical									
A—38	30.0	120.0	30.0	170	37.3	3.6	96.4	90.0	7.5
A—40	30.0	71.2	50.5	170	42.5	4.0	97.8	91.7	5.3
A—39	34.2	136.8	30.0	170	34.5	3.0	97.7	87.6	7.2
A—41	34.2	85.0	48.3	170	38.6	3.2	97 7	89.4	5.2
[1]B—215	34.2	68.4	60.0	170	36.8	..	99.5	...	6.5

[1] Cook B-215 was made in a bomb digester of 350 cc. capacity. Time to maximum temperature ½ hour; time at maximum temperature 3½ hours. See Table 1 for cooking conditions of the other cooks listed in this table.

Since the pulps in this series were prepared under the same conditions except for the ratio of chemical to wood and the resultant change in concentration, the yields decreased as the ratio was increased. Examination of the strength figures for the crude pulps indicated that none of the pulps were exceptionally strong; their strength decreased markedly with increase in ratio and concentration of chemical. The pulps from digestions 38 and 39 appeared to be considerably overcooked.

Upon bleaching the pulps from digestions 37 and 38 with 20 per cent of bleaching powder and that from No. 39 with 18 per cent, considerable loss in strength occurred, and the bleached pulps did not develop further strength upon milling in the pebble mill. None of the bleached pulps attained a satisfactory color. Red predominated in each one, causing a reddish-orange hue in all of them. The most nearly satisfactory color was obtained from the two pulps (Nos. 37 and 38) prepared with the smallest amounts of chemical, in which the cooking liquors were comparatively dilute. Pulp 37 had a slight advantage over No. 38 in that it was tinted to a somewhat smaller degree. The results indicated, however, that none of these pulping conditions would permit both a satisfactory color and the desired degree of strength.

The possibility of decreasing the temperature of digestion of No. 39, in order to decrease the speed of the reaction and thus increase the yield and strength, next presented itself. Table 1 shows that decreasing the digestion temperature 10 deg. C. results in a considerable increase in strength, together with an increase of over 5 per cent in yield, but the color of the bleached pulp was not improved through this change in temperature. Further experiments dealing with the effect of temperature will be discussed later.

SERIES 2.—EFFECT OF VARYING THE CONCENTRATION OF CHEMICAL IN THE COOKING LIQUOR

Since none of the pulps prepared in the first series exhibited both satisfactory strength and bleaching qualities, further changes only in the ratio of chemical to wood in either direction would not produce these desired qualities under the conditions of the experiment. Although digestion 37 gave the highest yield, the color and strength of the bleached pulp were not satisfactory. Therefore a longer cooking period, under the conditions of digestion 37, to decrease the bleach requirement and to produce a lighter-colored bleached pulp, would result in loss in both strength and yield.

The small bomb[3] digestions had indicated that the higher ratios of chemical to wood offered the greater possibilities for a satisfactory pulp, especially from the standpoint of bleach requirement. In applying further the knowledge gained from these digestions, it was thought desirable to concentrate attention upon the high ratios, rather than to include the low ones. The small digestions had shown that improving pulps produced with low ratios through changing other pulping conditions, such as temperature and concentration of chemical, would be more difficult than improving high-ratio pulps. Accordingly, the conditions of digestion 37 were rejected for the time being in favor of those of Nos. 38 and 39, in spite of the seemingly favorable initial results of No. 37.

Recognizing from the experiments of the first series that a reduction in bleach requirements could not be brought about merely through decreasing the speed of the pulping reaction as a result of lowering the digestion temperature, a second series of experiments was conducted in which the effect of another important variable was studied; namely, the concentration of chemical in the cooking liquor. In this series the same chemical ratios employed for the second and third cooks of the first series were used. Upon decreasing the concentration of the chemicals in the cooking liquor from 120 grams per liter to 71.2 grams per liter, respectively, and maintaining other conditions constant, the data recorded in series 2 for the first pair of digestions, Nos. 38 and 40, show the following results:

The yield of pulp increased from 37.3 per cent to 42.45 per cent; the strength of the crude pulp, as shown by pebble-milling tests, materially increased; and a better color was obtained with the same ratio of bleaching powder. Subsequent chemical analysis of the two pulps showed, by their cellulose and alpha-cellulose content, that a higher degree of purification had been obtained in digestion 40 than in No. 38. In addition No. 40 required less chlorine[11] to isolate the cellulose than No. 38. These results seem contrary to expectation because it is usually conceded that the lower the yield the higher will be the cellulose content of the pulp. The figures, however, confirm the results obtained from the small bomb digestions previously[3] cited.

The same general relationship as that just described exists also in the second pair of digestions of series 2, Nos. 39 and 41, where 34.2 per cent total chemical was added. A lowering of the chemical concentration or an increase in ratio of water to wood for digestion 41 as compared to that for No. 39 produced results exactly in harmony with those described in the preceding paragraph. Of the two low-concentration digestions.

the one that employed the higher ratio of chemical to wood showed somewhat the better bleaching qualities. It would be necessary however, to increase the yield and especially the strength of the pulp of this digestion in order to obtain a strong, easy-bleaching product. As pointed out in the discussion of series 1, yield and strength can be increased either by changing the speed of this reaction through changing the temperature of digestion or by decreasing the time of pulping. Accordingly, further studies were undertaken to find methods to obtain such an increase. The following discussion treats this phase of the investigation

SERIES 3.—EFFECT OF TEMPERATURE OF DIGESTION ON THE YIELD AND PHYSICAL PROPERTIES OF THE PULPS.

Having found from the previous digestions that comparatively high ratios of chemical to wood at low concentration of chemical in the cooking liquor produced the most favorable results, a study of the temperature of digestion was next pursued for the purpose of increasing yields and strength without material increase in the bleach requirement of the pulps. The data recorded in Table I under series 3 show the results obtained through reducing the temperature from 170 to 150 deg. C. in steps of 10 degrees each, while maintaining all other conditions constant. Upon decreasing the maximum temperature of the last three digestions of the series as stated, the yields obtained were 38.6, 41.7, and 47.5 per cent, respectively. The maximum strength developed in the pebble mill increased with the first drop in temperature of 10 deg. C., but further lowering of the temperature produced no further increases in strength.

The bleach requirement of the pulps increased to such an extent as the cooking temperature was lowered that the two pulps cooked below 170 deg. C. could not be considered easy bleaching.

The results of series 3, as previously mentioned in discussing those of series 1, indicated clearly that decreasing the digestion temperature alone merely reduces the speed of the pulping reaction without benefiting the bleachability of the crude pulp. Had pulps 41, 44, and 45 of series 3 been cooked to the same yield at the three digestion temperatures by increasing the period of digestion as required, the chlorine consumption of all three pulps would probably have been nearly identical in value. This conclusion has been discussed at length in a previous publication[9] which dealt exclusively with the temperature relationship.

SERIES 4.—EFFECT OF TIME OF DIGESTION UNDER CONSTANT COOKING CONDITONS ON THE YIELD AND PHYSICAL PROPERTIES OF THE PULPS.

The data thus far presented indicate that digestion 41, employing the high ratio of chemical to wood, exhibited the best color of the bleached product. This pulp may be considered an easy-bleaching product. The yield of unbleached pulp (38.6 per cent oven-dry basis) was rather low, however, and in addition the strength of the unbleached pulp was not sufficiently high to take care of ensuing losses during the bleaching operation. Since decreasing the temperature of digestion did not produce the desired results; namely, increase in yield and initial strength of the pulp without material increase in its bleach requirement, a fourth series of experiments was conducted in which the time of digestion at the maximum temperature (170 deg. C.) alone was varied. In this series the time of digestion at maximum temperature was decreased from 2-½ hours to 1 hour in steps of ½ hour each with all other pulping conditions remaining the same as those of No. 41.

The results, recorded under series 4 in Table 1, as would be expected show an increase in yield as the time of cooking is decreased, excepting pulp 48, which was held at maximum temperature for 2 hours. The recorded yield for this digestion, showing a decrease of 1.5 per cent over No. 41, which was digested ½ hour longer, is probably in error since the developed strengths of the crude pulps all showed regular increases with decrease in pulping time. Further, upon decreasing the cooking time the bleach requirement increased. Comparing pulps in this series bleached with the same ratio of bleaching powder, it became evident that the best color was obtained from the pulps cooked for at least 2 hours at the maximum temperature of 170 deg. C. Considering this fact, the time of digestion apparently could not be decreased materially without producing a pulp of relatively high bleach requirement and poor color. It should be mentioned here that pulps of high bleach requirement lose so much more strength during bleaching than comparatively easy-bleaching pulps do that they can not be considered for use in the production of a strong white paper. Therefore, only pulps with an initial strength factor approaching a point per pound per ream weight and of comparatively low bleach requirement are of value for the special purpose desired.

Semicommercial Pulping Trials

The data for each of the series of experiments here reported indicate that the most satisfactory results were obtained when the wood was pulped for approximately 2-½ hours at a maximum temperature of 170 deg. C. with a cooking liquor containing a relatively high ratio of chemical to wood, provided the concentration of the chemicals was maintained at a low value. There exists, however, an economic limit beyond which it is impracticable to go commercially in lowering the concentration because, in following such a procedure, not only is the capacity of the digester decreased but the cost of recovery of the chemicals is increased. Nevertheless, after consideration of the results obtained from the several series of experiments dealing with the effects of changing the cooking variables, an experiment on a semicommercial scale, in which 90 pounds of oven-dry wood was pulped instead of 5 pounds, was conducted. The object of this experiment was to determine the effect of further decreasing the concentration of the chemical in the cooking liquor. Digestion 2252 was designed to combine the essential points of Nos. 41 and 40, using the high ratio of chemical to wood of the former (34.2 per cent total chemical) and the low concentration (70 grams per liter) of the latter. The same time-temperature relations, employed in these two digestions and justified by the results recorded in series 3 and 4, were again used for No. 2252. The temperature was brought to the maximum (170 deg. C.) mainly by means of indirect steam heating, although a small amount of direct heating was necessary just before the maximum was reached to insure a uniform increase during the temperature rise period. Direct heating only, with the aid of the relief line, was employed to hold the temperature of digestion at maximum.

The results of digestion 2252, together with those obtained in repeating the experiment several times, are recorded in Table I. The figures show that further decrease in the concentration from that used in digestion 41, from 85 to 70 grams per liter, caused the yield of oven-dry pulp to increase from 38.6 to 41.1 per cent. Accompanying this increase in yield a marked increase in strength was also obtained over that of No. 41, an increase at least equal to that of No. 44, which was pulped at a temperature 10 deg. C. lower. In addition, the color of the unbleached pulp from No. 2252 was considerably lighter than that of No. 41, even though the latter was pulped down to a lower yield. Both of the pulps, however, required approximately the same amount of bleaching powder, namely, 20 to 22.5 per cent of their weight oven-dry, to reach maximum color as determined by the Ives tint-photometer method. Although the color of the pulps bleached experimentally with bleaching powder, both in the bleach-requirement tests and in the beater, appeared better than any produced from loblolly pine kraft pulp either during this investigation or previously at the Laboratory, these pulps could not be considered either equal to that of spruce sulphite or entirely satisfactory for high-grade papers.

Upon bleaching the pulp from digestion 2252 with 20 per cent of its weight of bleaching powder the maximum bursting strength

developable in the pebble mill decreased from 1.0 to 0.7 point per pound per ream.

Because a comparatively strong and easy-bleaching kraft pulp of light initial color had been produced on a semicommercial scale through the cooking procedure outlined for the preparation of No. 2252, further investigation of bleaching methods for the production of a lighter and brighter-colored bleached kraft pulp without material loss in strength was the next logical step. In order to prepare enough pulp from time to time for the experimental bleaching studies and paper machine runs it was necessary to repeat the digestion for this series of experiments a number of times. The pulping conditions of No. 2252 were maintained throughout the series except that the time of cooking was varied slightly. By decreasing the cooking period 15 minutes for No. 2254 and also for Nos. 2264 and 2265, 2266, and 2267, the yield of oven-dry pulp was increased to a maximum of 43.0 per cent without offering difficulty in bleaching by means of the method employed. The cooking data are not included for digestions above No. 2254. The experimental data obtained in studying methods for bleaching the pulp to a higher white color for subsequent use in high-grade papers will be presented in detail in a following article of this series.

Briefly the method developed is a two-stage chlorination-hypochlorite treatment consisting of a chlorination at low consistence (2 to 3 per cent) and a thorough washing with water, followed by a calcium hypochlorite bleaching treatment. Through this method a considerable saving in bleaching agent is effected, and the resulting whiteness and brightness of the bleached pulp are better than those obtained from a one-stage bleaching-powder treatment. The bleached pulp appears to suffer no loss in strength because of the operation. The bursting-strength factor developed by the pulp so bleached was about 1 point per pound per ream.

The amount of chlorine to be used in the first stage of this process is calculated from the results of the bleach-requirement tests. Approximately half of the total amount of chlorine required as bleaching powder in the tests is used in the first stage of the process, as chlorine water, and approximately half of the amount added as chlorine water in the first stage is used in the second stage as bleaching powder. Thus if a pulp requires 25 per cent of its weight of available chlorine as bleaching powder in the bleach-requirement test, 12 per cent of its weight of chlorine in water is used in the first stage of the process and 6 per cent of its weight of available chlorine is used as calcium hypochlorite in the second stage. By means of this method approximately 25 per cent of the bleaching agent that would otherwise be required is saved and at the same time the pulps so bleached are stronger, whiter, and brighter than those obtained from the use of bleaching powder.

In comparison with bleached spruce sulphite pulp, the pine sulphate pulp, bleached by the modified chlorine process, is of slightly less satisfactory color. The sulphate pulp, although of equal brightness (parts of blue), has a somewhat more yellowish tint than a high-grade bleached sulphite pulp, which approaches closely to a neutral white. The maximum strength developable in the pebble mill with this sulphate pulp is fully equal to that obtained from the ordinary commercial grade of bleached sulphite pulp. The strength development curve of bleached sulphate pulp, however, is quite sharp; it would therefore be necessary to exercise close control during beating in the commercial operation in order to avoid overbeating.

The bleached sulphate pulps so far produced also hydrate to a greater extent upon beating to maximum strength; hence the papers produced from them are less nearly opaque than those made from bleached sulphite pulps. This property necessitates the addition of some material such as soda pulp or clay in order to obtain a sheet of a satisfactory degree of opacity. Such addition fortunately improves the color of the finished sheet.

Substitution of bleached sulphate pulp for bleached sulphite pulp in the production of most grades of writing and book papers appears to be commercially feasible.

Summary

The kraft or sulphate process has been modified so as to make it adaptable to loblolly pine for the production of an easy-bleaching pulp of good strength.

The data set forth in this article show the effects on the yield, strength, and bleachability of the resulting pulps of varying several of the cooking conditions: namely, chemical ratio, chemical concentration, temperature, and time of digestion. Even though wood that had been stored for several years was used, the results were satisfactory.

The best results were obtained through the use of ratios of chemical to wood higher than those ordinarily employed but by reducing the chemical concentrations of the pulping reagents the kraft pulp produced by the modified pulping process can be bleached to a fair degree of whiteness in a one-stage treatment with 20 to 25 per cent of bleaching powder; it can be bleached so well that the resulting pulp with its strength factor of 0.7 point may be used in various commercial grades. Further, this kraft pulp can be bleached, without loss in strength, to a relatively high white in a two-stage treatment by a modified method, consisting of a chlorination followed by a calcium-hypochlorite bleach; the resulting bleached pulp can be used for the production of strong white papers of high grade.

Acknowledgment

The authors wish to acknowledge the helpful guidance of C. C. Heritage, formerly chief of the Section of Pulp and Paper of this Laboratory, and the assistance of C. E. Peterson, R. H. Doughty, and J. F. Moehlman in conducting these experiments.

Tomahawk Starts New Paper Machine

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 29, 1930—Production has been started by the Tomahawk Kraft Paper Company, Tomahawk, Wis., on its No. 2 paper machine, the installation of which has just been completed. The output has been increased from 45 tons to 100 tons of kraft paper daily.

The new machine, built by the Beloit Iron Works, is 156 inches wide with a 144-inch trim. The No. 1 machine, operated for many years, is 132-inch, with 120-inch trim. Auxiliary equipment includes Dilts beaters, three Bird paper screens, two Bird pulp screens, and five Vickery doctors. Eastwood Fourdrinier wires were also purchased.

Installation of the new machine was decided upon by the company about a year and a half ago in order to balance production with the pulp supply. The sulphate pulp mill, built shortly after the present company was organized in 1923 by the late Olai Bache-Wiig, had a capacity of 80 tons daily, and the two water powers at Nigger Island and Grandmother Falls on the Wisconsin River had a surplus power capacity. The No. 2 machine therefore utilizes these resources previously in existence.

This company was the first to have automatic remote control at its power dam, and also the first to install rod mills for pulp grinding. The rod mills have been found highly successful. Twenty-eight specialties in the kraft line are now being manufactured, including wrappings, bags and related products. A printing service is operated in connection with the mill so products can be turned out complete for the trade.

Present officers of the company are: A. L. Kreutzer, president; S. B. Bugge, vice-president and general manager, and D. C. Everest, secretary-treasurer.

Muir Mill at Lyndell Burned

COATESVILLE, Pa., December 29, 1930—A fire, the most disastrous in its destruction ever to occur in the vicinity of Lyndell and that countryside, Wednesday afternoon, December 17, destroyed the paper mill, boiler house, engine house and several smaller buildings, the property of William E. Muir. The loss is estimated at close to $60,000, partly covered by insurance.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

Federal Trade Commission Report on Cost Work In Open Price Trade Associations*

Continued from Issue of December 25, 1930

Section 2—Debatable Points of Accounting Principle and Method

General

Even though uniformity of accounting methods may, in some important respects be of more importance than strict accuracy, and may to advantage be developed ahead of the latter when the cost figures are to be used principally for purposes of comparison by concerns in the same industry, the best basis for an agreement as to what method should be adopted is the determination of what method is best for dealing with each particular accounting problem. To clarify and settle as many disputed points as possible is, therefore, in the interest of uniformity of accounting practice.

One large group of debated questions relates to charges for depreciation. The difficulty here, however, has been in defining and prescribing how much depreciation shall be charged from year to year, and how it shall be charged rather than a matter of fundamental accounting principle. Though there is a general agreement that depreciation, as such, is a proper operating charge, this view has been sharply questioned recently in the public-utility field.

Another large group of questions much debated among accountants is as to how overhead should be charged. Here the question is not merely as to how much should be charged and the method of its distribution to the different departments, jobs, or processes but as to whether some overhead and fixed charges, such as interest, are properly chargeable to operation at all. It is this group of unsettled questions that is worthy of particular attention in the present connection, because some overhead charges have a more important relation to the costs that are often made the basis of price making than does depreciation, although the difference is admittedly one of degree. Charges for interest, rentals, and even for expected or "normal" profits constitute the most important items in the group of debated questions. The public interest is evident in the question of including interest on our investment and other profits in cost, and association activities in this respect are worthy of special attention.

Interest on Invested Capital

The facts as to the great variety of methods used in making charges to costs for interest, which are developed in the following paragraphs, speak for themselves. It is evident that the need for the establishment of uniform principles is no better met than the scientific question, as to what is the right principle to follow, is answered.

For the purposes of this inquiry an examination was made of 75 uniform systems of accounting now being used by the members of various trade associations. Twenty-four of these cost systems specify that interest on invested capital is to be treated as a cost of production, 2 systems leave this question optional with the members of the association, and the other 49 systems make no mention of this item or give reasons for not including interest on investment in the costs.

The 24 systems providing for the inclusion of interest on investment as an item of cost differ to some extent as to the rate to be charged. The different rates, and the number reporting each rate, are as follows:

	No. of Associations
5 per cent	4
6 per cent	10
7 per cent	1
Minimum of 6 per cent	2
Legal rate, minimum of 6 per cent	1
Legal rate	1
Local rate on reasonably secure long-time investments	1
Average borne by bonded indebtedness, or some fair rate	1
Not stated	3
Total	24

There is also an apparent diversity of opinion among the compilers of the 24 systems as to what should be included in the investment, or the base upon which the rate is to be applied. The directions, in some cases are rather vague and indefinite. If more complete details had been given, it might have been possible to list the different methods under fewer headings. The various bases, condensed as much as possible, are listed below:

All capital employed in the business, regardless of its form, including inventories, accounts receivable, and cash. Prime costs used as a basis for valuing permanent assets.

Permanent assets at normal replacement valuation, and average inventories of raw and prepared material, product, and finishing material, steam supplies (fuel), and maintenance material and supplies.

All operating assets, including permanent assets, inventories, accounts receivable, and cash (two systems).

Gross assets used in the business, regardless of the liabilities created in the maintaining of the assets; less reserves for depreciation, bad debts, etc.

Inventory and permanent assets used in the business, regardless of any liabilities incurred in creating or in maintaining the assets.

Total capital used in the business, whether owned or borrowed, and regardless of its form. Interest on permanent assets distributed on the basis of their original cost value.

* From letter from Chairman of Federal Trade Commission transmitting to Senate report on "Open Price Trade Associations."

Total plant investment and materials on hand.
Permanent assets and inventories of materials and supplies.
Plants and average inventories.
Permanent assets and raw-material inventories.
Permanent assets at depreciated value and inventory of finished product (two systems).
Factory investment.
Permanent assets-capital originally invested.
Permanent assets-present value.
Net investment in the business (three systems).
Capital invested in land and buildings only.
Capital and surplus (two systems).
Average net worth.
The investment generally used.

Where, under these systems, interest on invested capital is charged into costs, there is the possibility of duplication by including also interest paid for borrowed money, the proceeds of money borrowed being presumably, in large part, represented in the corporation's investment. To avoid the doubling of interest charges, the accounting systems advocating a charge for interest on investment, particularly those recommending the inclusion of the total, or approximately the total, investment at the rate base, provide, as a general rule, for the handling of interest paid on bonds, or other borrowed money as a non-operating or financial expense. Others that include only capital and surplus or "net investment" in their rate base usually treat interest actually paid as an additional operating cost.

Of the 51 systems not recognizing interest on invested capital as a production cost, or leaving the question optional with the association members, 30 treat the interest paid for borrowed money as a non-operating expense, 11 include this item in their costs, 1 makes it optional, and the remaining 9 do not report or are indefinite. Three of the eleven systems which include interest paid in the costs of production, treat interest received as financial or non-operating income.

Cash Discounts

The proper method of handling cash discounts is related to the question of debits and credits on account of interest, because cash discounts taken may be regarded as a negative element in the price and those not taken, as a source of income to the seller; or the payment received may be regarded as the price of the goods regardless of its inclusion of a payment for something else than the article sold. If the cash discounts are deducted from the sales, the prices received for different lots of products vary in effect with the time allowed the buyer in which to pay; but if the buyer is allowed more time in one case than in another, he receives, through such accommodation, something more in the former than in the latter case. Whether the "something more" or the accommodation in question is mainly a matter of financing or not it is not necessary to consider, though a comprehensive concrete and numerical study of why and to what extent cash discounts are or are not taken would be of great value.

Theoretically, it would be desirable to deduct an element corresponding to the cash discount from all prices in order to make the prices to different buyers comparable. This is logical from an economic point of view, but it would be difficult to handle books of account on this basis. The practical difficulties, therefore, outweigh the statistical and economic arguments for such a practice, which, after all, are perhaps concerned with outside needs rather than the accounting needs of the particular business concern. The direct deduction of cash discounts from sales affects the average price, but it affects it no differently from the practice of granting different prices to buyers desiring longer or shorter periods in which to settle accounts. Under present business conditions, it is a fundamental fact that the sellers finance buyers to a greater or less extent, and obtain their return for such financing in the prices charged for the goods sold. But such financing is evidently only a part of the services and considerations involved. In the present connection the important point is the fact that it is practically impossible to separate the charge for such services from the charge for the product apart from the incidental services accompanying its transfer. On the other hand, it is argued—with regard to form rather than substance, it would seem—that cash discounts should not be deducted from sales, because the price for which the goods are sold is not affected by whether the buyer avails himself of the privilege of paying promptly and getting the benefit of the discount or not.

It is of interest to note the different methods suggested by the 75 accounting systems above referred to for entering cash discounts. The following summary statements cover both cash discounts on sales and cash discounts on purchases. The method provided for and the number of systems recommending each particular method are summarized as follows:

CASH DISCOUNTS ON SALES

Direct deduction from sales	13
Operating expense	12
Nonoperating expense (financial item)	28
Optional	1
Not reporting	21
Total	75

CASH DISCOUNTS ON PURCHASES

Operating income or direct deduction from purchases	8
Nonoperating income (financial item)	39
Optional	1
Indefinite	2
Not reporting	25
Total	75

Ten of these systems treat sales discounts as an operating expense or as a direct deduction from sales, and treat purchase discounts as nonoperating income of financial items. Such inconsistency is not so infrequent in accounting practice as one might properly expect. In accounts, as in other matters, it appears to make a difference whose ox is gored. In general, the great variety of methods employed suggests conflict of practical interests, and not mere lack of agreement on scientific principles.

Neither Profits nor Interest a Necessary Element in Specific Prices

—The proposition that neither profits nor interest is a necessary element in the price on a specific sale may be made even more general. Nothing in the way of cost is a necessary element in a particular price; if expenditure is sufficiently ill judged or sufficiently unfortunate, it may that no price can be obtained. The possibilities of such incidence of misjudgment and misfortune are at a maximum for profits, and very great for interest, so far as the reference is to the so-called interest return. Whether profits are obtained depends upon the condition of the market. Nobody is supposed to buy something that he does not want, and if his want is doubtful or of slight degree, he will not wish to pay much, even for a commodity that costs a large amount to produce. This situation may be characterized in terms that are familiar to the economist by saying that profits are a result, not a cause, of prices. Of course, various elements in cost may have a directly causative influence on prices and in the long run a decisive effect.

It is generally true of a fixed investment that once it is made, whether it can earn a return or not, depends on conditions of demand that are largely beyond the control of its managers. This is an important objection to the inclusion of interest as an element of cost. If the interest is an out-of-pocket expenditure, the situation however, is somewhat different from where it is merely an assumed reasonable return on property directly owned.

It may be true, however, that for some purposes of comparison it is desirable to include interest on investment *represented by capital fully owned*, as well as interest paid; in other words, it is sometimes legitimate and desirable to make statistical comparisons on such a basis, *but the accountant should not forget that the relation of cost results thus obtained, to prices and to sales policies is of no decisive significance. In proportion as the inclusiveness of the computed cost stretches up toward profits, the extent, to which the responsible manager may be supposed to relate his prices to such figures, decreases; and, especially if "normal profits" are included,*

the resulting cost figure is in its detail irrelevant, except as something the sales manager may be willing to aim at. As an argument designed to influence the public's idea of what the price of the product in general ought to be, such a figure may be quite irrelevant.

Some specific points bearing on the relation of prices to profits, and supporting the conclusions just suggested, deserve attention. In particular, it should be noted that the word "price" refers primarily to the pecuniary aspect of the specific bargain by which a particular article is sold at a definite time. "Profits" in so far as they have relation to capital investment, refer rather to the results of operation of a business entity for a considerable period of time, presumably for a year. Any connection between prices in this specific sense and profits, therefore, can be brought about only through combining prices into aggregates and averages; in which process, the character of prices as direct results of market bargains is lost. Or, if the attempt to make prices and profits comparable proceeds by splitting up profits and trying to determine a profit for each particular article or class of article sold, then the unit profit resulting may be largely a matter of allocation or estimate, and one man's estimate may differ widely from another's. Some items, the direct cost of which is no greater than certain other items, may be sold at a price that will carry several times the contribution to meet indirect costs made by the latter.

If the variety of the products of an esablishment is considerable, and if some of them are to a greater or less degree by-products, the extent to which costs, even as regards direct outlays for materials and labor, can be divided between the unit products on an objective basis is especially limited. The conventional cut-off of income statements, by years, moreover, may mean that profits earned are not credited to the costs met in earning them; the profits of one year may be the results of costs incurred in a previous year, and vice versa. An illustration of the error often involved in charging overhead to current operations by prorating according to time elapsed is afforded by the application of such a rule to the computation of expenses and profits by months in an industry subject to seasonal fluctuations of demand. Prices may be aggregated and averaged for purposes of comparison, but the sales manager finds that he must quote not average but specific prices, and maybe different prices for the same commodity according to market conditions and according to the buyer, especially with reference to the volume he takes. A deficient volume of sales can turn expected profits into losses at any time.

One of the most frequent errors of principle in compiling cost data results from the assumption that any existing average degree of utilization of plant and facilities can be accepted as normal and that the cost of carrying the entire plant, regardless of its degree of utilization, can be included in computing unit costs that are properly related to prices. The costs so arrived at may include a return on any amount of unused and unutilizable capacity, whether obsolescent or badly located. Even if a useful, computation of cost including, on general economic grounds and for statistical comparison, charges for capital may, for some purposes, properly allow for carrying some unused capacity, that is in effect a reserve, either for seasonal fluctuations in demand, or for cyclical fluctuations, *it is not proper to assume that the public that buys from the industry can properly be burdened with a return on all the capital physically in existence, regardless of the degree of wisdom or unwisdom exercised in making the original investment and regardless of its condition.*

This idea is reduced to the absurd when it is applied to a declining industry, where market conditions may mean that a small return over operating expenses is the most that can be obtained for the product—where perhaps, only out-of-pocket expenses have any relation to prices. Under such conditions, most of the capital investment in the industry needs to be written off, and must ultimately be written off. But the theories of those interested in the use of cost as the basis for price seldom or never admit of any allowance for excess capacity. *Of course, the market and the prices actually obtainable, are entirely uninfluenced by any sort of costs based on investment that includes excess capacity or out-of-date plant.*

It may not be the business of the cost accountant as such, but that of the manager, to take into consideration the influence of the volume of demand and sales upon unit costs. Whoever makes use of cost-accounting data, however, should not permit himself to forget that the greatest factor in bringing about low unit costs, as regards the element of fixed investment and overhead items generally, is intensive utilization and heavy volume of sales. In the use of averages for a whole industry, which is characteristic of trade-association cost comparisons, the effect of excess capacity on the results is much more pronounced than in the case of any successful individual establishment. The industry contains all varieties of maladjustment and unwise investment, which the successful large enterprise does not. Even the large single enterprise, however, often has an excess development of productive capacity, which can have a direct effect upon prices charged only if the business is in a more or less monopolistic position. *The idea of one important trade association executive that conditions during the last two years' operation for an industry well known to have been in a depressed condition can properly be made the basis of computed costs illustrates a desire to load upon the public the burden of unutilized capacity which is unfortunately too common in trade-association circles.*

As the result of income-tax statistics made available by the Treasury Department, especially since the war, it has become generally known and a matter of much comment in the business world that a large proportion of business establishments (about one-third or more in 1924, though, of course, varying with the industry) make losses instead of profits. This is regarded as astonishing and assumed to be an evil that can and should be remedied. Such facts contradict the idea that there is a normal rate of profit which most business establishements succeed in obtaining. To state the fact in statistical form, there is evidently no pronounced mode or prevailing or typical figure as regards rates of profit. An arithmetical average rate of profit may be significant for some purposes, but the arithmetical average does not, in the nature of the case, yield a typical figure, and the "normal" that is talked about in the business world is another name for an assumed type. *There is no typical rate of profit.* There is great variation in the rate of profit in each kind of business, and even in the most prosperous years a large number incur losses instead of making profits.

This is as might well be expected. Many who go into business have not the administrative ability or are otherwise lacking in the necessary experience and judgment. They make losses, or, if their inexperience or lack of ability is not too great, they make a rate of profit less than an interest return on the money they invest. *Administrative ability, in business as in other work, is far less common than the ambition to assume administrative responsibility.* The provision made in the existing economic order for the maintenance of a high degree of efficiency in business is competition and the competitive elimination of the less efficient. Since inefficiency is relative, there are always some who are relatively inefficient to be eliminated, and these appear in the income-tax returns among those making losses repeatedly from year to year. The losses made are evidences of a process of competitive survival of the fittest. This process, it is true, does not work with exact justice, and good or bad fortune causes losses as well as inefficiency. Especially efficiency at the manufacturing end may not get all it deserves. And, of course, a loser one year may have large profits in the next. In general, if there were no business concerns sustaining losses, that would indicate an absence of effective competition and inefficiency in industry, at least in the long run, since competition and the elimination of the unfit are what make business dynamic and progressive.

To conclude, price is not an affair of the cost accountant and can not be fixed on the basis of accounting data and unit costs. Much less is this the case where an attempt is made to include in unit

data all possible costs, regardless of the wisdom or unwisdom of the original investment and of present management.

Section 3—Questionable Uses of Association Cost Accounting

Trade-association interest in cost accounting involves more or less comparison and possibly discussion of the data, hence much that is treated here under the head of "cost accounting" might equally well be dealt with in considering cost comparisons by way of statistics, a subject which is treated in the next section. The idea of comparison, however, is implicit in cost accounting as an association matter, whether developed into concrete cost statistics or not, hence it is proper to consider under the above head some uses of cost-accounting data that may involve a degree of comparison.

UNIFORMITY OF COSTS:

The attempt under the guise of uniform accounting methods to bring about "uniformity of costs" has already been mentioned. The ways of doing this are varied and sometimes rather subtle. An instance that came to public attention some time ago was that of the lumber-association practice of charging stumpage on a uniform basis, regardless of cost. The Federal Trade Commission has commented on this practice as follows:

Considerable work has been done by the various southern pine lumber manufacturers' associations in the study of costs reported to the associations and compiled by them for the use of their members. In order to make their reports more comparable, the associations have recommended the adoption of certain uniform methods of cost keeping. Much of this work had an educational value in bringing about with this beneficial work certain methods that are not in accordance with the best cost-accounting practices, such as charging stumpage into costs at the estimated current market value and charging interest on investment to cost, have in some instances been advocated by certain individuals active in association work, if not officially recommended by the associations. The recommendation of such practices appears to have had for its object the adoption of such methods as would yield greater uniformity in the costs of all companies, as shown in their reports submitted to the associations, rather than the determination of the actual costs for individual companies. *From an accounting viewpoint stumpage should be charged into costs at current market value only in case that price was paid for it, while interest is not properly an item of direct manufacturing cost.*

Charging stumpage into costs at current market value or at figures higher than cost as shown by the books of the companies was found to be quite prevalent. The practice appears to have been one that gradually developed, partly because individuals engaged in the industry lacked accurate accounting knowledge and partly because it has been advocated strongly by some mill-owners as a basis for price determination. This practice, however, was carried to such a point by some companies that the entire timber account was written off before the end of the cut, and in some cases written back again and the process was being repeated.[2]

One of the leaders among trade associations in developing cost-accounting work has been the United Typothetae of America. At one time field accountants were employed by this association who not only checked the accounting results of members but compiled averages. These average costs for certain elements, whether by suggestion of the association and its agents or not, *were alleged to be used as a substitute for costs computed on the basis of the individual experience of the particular printing establishment. Thus there appeared to be some tendency to make prices or bids for work nearly, if not quite, uniform, by reason of the cost activity of the association.* Proceedings to contest in the courts the commission's order to cease and desist from certain practices were initiated by the association, but after conferences with the commission in which the interpretation of the order was clarified the appeal was abandoned and the order accepted.

Cost data may also be used in a way to suggest prices through the averages computed. The Maple Flooring Manufacturers' Association apparently used average costs as a means of suggesting prices to its members, prior to its prosecution by the United States Government, but it is alleged, abandoned this practice some time before the case was brought before the Supreme Court; hence, this point was not apparently at issue in the Supreme Court case. In 1915 a statement was made by a representative of an important trade association that a uniform cost list was the most efficient weapon toward uniformity in prices, such a list being the keynote of legitimate profit.

While there are other ways in which uniformity in methods of cost accounting may be made to work in favor of uniformity in price, the mere putting up of a general average, with a suggestion that it is a proper standard, will doubtless do much in that direction, where there is an active association and a consensus of opinion in favor of a high degree of price uniformity. The Eastern Millwork Bureau affords an illustration of the possible use of presumed-to-be-typical examples where no averaging is involved, the detailed cost for some one who has recently made some described article being set forth in an association bulletin from time to time.

The psychology of much association use of uniform accounting is illustrated by the answer of one trade association secretary to a question regarding the accounting activities of the association. He said, "We have no means or method of uniform or centralized cost keeping". If it may be inferred that "centralized" was, in the speaker's mind, synonymous with "uniform" the statement is very interesting. In another connection, this same secretary has expressed an opinion that "when you find uniform cost-accounting systems you find uniform figures."

The study, not only of average costs, but of any sort of cost data tending to make the members of an association think on the subject will promote uniformity of practice in computing costs and generally influence them in the direction of uniformity of prices. That there is a tendency of this sort however, is no reason for regarding the circulation of averages as in itself illegal.

So far as greater uniformity or a narrower range of prices resulting merely from better cost work means a reduction in the proportion of concerns doing business at a loss it is economically desirable. This proposition, however, does not mean that all the concerns at present in the industry should be kept going by raising prices—an assumption which is too common. Better cost accounting and cost information should tend to eliminate the practice of selling too low, in part by causing some in the industry to raise their prices *but also in part by causing some in the industry to decide to go out of business. If the first but not the second process is operative, there is occasion for suspicion of the use made of the cost-accounting data.*

PRICE-CUTTING:

The use of cost work as a preventative of price cutting is implied, but its importance is not fully indicated in what has been said above. It has been necessary to show the invalidity of some of the assumptions upon which full (and even swollen) "costs" have been constructed. So far as better cost information will result in the individual on his own initiative hesitating to cut prices, the result is perfectly defensible. If pressure is brought to bear upon the individual, however, in part by means of the circulation and discussion of cost-accounting data, and if, in particular, it is impressed upon him that his costs can not be or should not be different from the average costs of the industry, then the situation is legally questionable.

It is claimed by trade-association men that, because of price cutting, it is the unintelligent and uninformed men in the industry who make the prices. The Manual of Accounts of the Common Brick Manufacturers, in its introduction, refers to

[2] Report of the Federal Trade Commission on War-Time Costs and Profits of Southern Pine Lumber Companies (1922), pages xi and xii.

Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS

6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the Union Witham Screen Plate Vat and Fastener

Longer life for felts

SAVE money by washing your felts with Oakite. Felts cleaned the Oakite way last longer, and that means lower felt costs per year!

And the efficient performance of a perfectly cleaned felt means a better product! Oakite removes every bit of dirt, grease and foreign matter with absolute safety to the felt. Rinsing is quick and certain. Nothing left to spot paper.

Send for booklet giving more details of this and many other cleaning tasks in paper mills where Oakite can save money and time for you in 1931. The booklet is free . . . write for it today!

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of the United States and Canada

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Industrial Cleaning Materials and Methods

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"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
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75-77 Duane St., N. Y., and direct

WOOD PULPS

All Grades

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Acer, McLernon & Company Limited

CANADA CEMENT BUILDING
MONTREAL, P. Q.

"the small man who is not in a position to establish cost facts, and therefore is bad competition to such an extent that nobody is able to make 6 per cent on his investment. "A trade-association secretary says that the indiscriminate price cutter usually fails anyway, and also generally disturbs quality standards because of his indiscriminate cutting." In its statement of objectives the United Typothetae of America includes under the head of "competition" the following:

To eliminate the evils of ignorant and ruinous competition and make competition more honorable, just, and reasonable by the spread of a wider knowledge of the elements of cost, the proper remuneration for services rendered, and the necessity of selling at a reasonable profit.

Arguments against selling below cost are, unfortunately, too often not clear as to whether the reference is to the average costs of the industry or the specific costs of the individual concern; or it is assumed that everybody's cost is the same. If they are not the same, and if the capacity of the industry is ample, some must, in a time of slack demand, either sell below cost or else go out of business. *This distinction between individual costs and average costs involves the difference between individual business efficiency and conspiracy in restraint of trade.*

With the natural tendency of trade associations to include everything possible in costs and thus to swell the amount, it often happens that the individual finds that, in order to get any business, he must sell below such a cost figure. Under such circumstances the cost work of an association tends to overreach itself, because the members will find that they have to meet competition on a basis that is contradictory to the cost data. They will, therefore, get in the habit of selling at something below the general average "cost" and feel that this is necessary in order to get any business.

The propaganda against selling below cost does not attach importance enough to clear definition, as is perhaps inevitably characteristic of propaganda. Selling below cost, it is true may be employed maliciously, in which case it falls outside the scope of business. This is an evil which usually cures itself quickly, even if the policy appears to have ample financial backing.

The necessity of exceptions to the rule against selling below cost, even where reasonably defined, is not as often recognized as it should be. Surplus stocks and unseasonable stocks must be disposed of without regard to cost, and the sooner the manufacturer or dealer makes up his mind to cut the price in order to do this the greater may be his savings. The practice of some associations of providing for the purchase of bankrupt stocks of establishments in their line, noticed in the case of retail lumber yards particularly, is an illustration of something that may be sound in principle but which, human nature being what it is, is very susceptible of abuse.

As a prominent trade-association official has said, it takes a strong secretary to call a halt when cost work goes beyond costs. It might be added that it also takes an intelligent secretary to nip such a development in the bud. Among the many legitimate kinds of trade-association activities which may easily and imperceptibly pass over from the stage of useful service to that of abuse and even illegality, there are probably few more prone to this sort of transition than cost accounting work.

"Standard" Costs

The budgeting of costs is advocated by many cost accountants as generally applicable, even in cases where the work is not done on contract specifications, but consists in the manufacture of standard articles and largely for stock, where "estimates" or bids in advance of production are not involved. The question as to the advantage of such budgeted costs for purposes of general business administration is not at issue. Even though it be desirable to keep accounts generally on such a plan, the accounting results should also show actual history and experience in the production of the particular articles to which the data are supposed to relate. Many of the advocates of the so-called "standard or predetermined costs" apparently ignore the necessity of making their financial statements on the basis of actual experience instead of upon an expected and estimated basis. *So far as some of these standard costs are not a matter of budgeting merely, but are designed to take account of the degree of utilization of plant and facilities in a way to prevent charging into direct cost the burden of taking care of undue reserve capacity, or even absolute excess capacity, there is something to be said for them.*

The objection to "standard costs", as standard costs are conceived by certain accountants largely interested in trade-association work, *is the usual assumption that the ratio of utilization to be employed shall be based on the general experience and average condition of the industry, instead of on the particular experience of the individual business establishment.* The ratio for a particular establishment, it is true, is only to a limited extent within the control of the management, and may therefore be regarded as a cost imposed upon the industry by conditions of demand. But the advocates of the plan referred to, would base their computations on the capacity factor of the industry, instead of its ratio of average to peak utilization, or "load factor," *thus attempting to charge the public with cost due to the mistakes and readjustments the industry has made or must effect. Trouble with the Sherman law as an obstacle to an argument in an industry upon a "normal" ratio of utilization of machinery and facilities is of incidental interest.*

Most of such ideas as to possible uses of cost accounting and cost statistics are theoretically wrong, rather than practically mischievous. Mischief results, however, where uniformity of prices is brought about or attempted *through the general employment by individual manufacturers of standard or average costs in place of their own varying costs in fixing prices.* It would seem that the evils of this practice have been sufficiently called to the attention of business men by legal developments, but there is no doubt that this sort of thing still goes on to a considerable extent. In November, 1925, a professor in a university business school, in expatiating on the advantages of cost statistics, suggested that they indicate how a manufacturer may use standing costs as a basis for determining his own selling prices, (whatever are his costs) with a view to obtaining a reasonable profit.

To Be Continued

Larger Paper Production Demanded

The Port Arthur City Council, by unanimous vote this week, and on the suggestion of the Paper Makers' Union, the Trades and Labor Council, and a ratepayers' association, decided to demand of the Ontario Government that it call for enforcement of the agreement covering operation of the Thunder Bay paper mills in Port Arthur. The Thunder Bay mills are owned jointly by the Abitibi Power and Paper Company and the Canada Power and Paper Company. The complaint of the City Council is that, while the average operation in Canadian news print plants is nearly 70 per cent, the Thunder Bay plant has been operating less than 30 per cent over a year, although it is classified as one of the three lowest cost mills in Canada. The demand is made that the Government enforce the penalty clauses, providing for cancellation of limits and other forfeitures.

Paper Mills Celebrate Christmas

[FROM OUR REGULAR CORRESPONDENT]

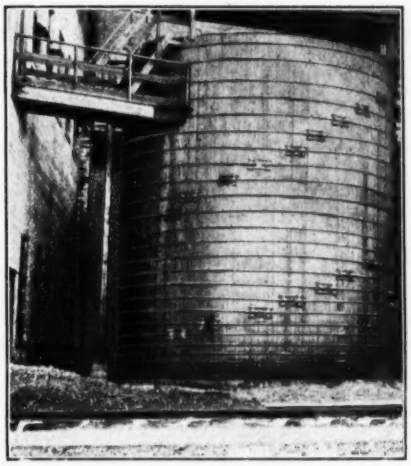
APPLETON, Wis., December 29, 1930—The Hoberg Paper and Fibre Company, Green Bay, Wis., helped to dispense the Christmas spirit by setting up a huge Yule tree in the parkway at its mill. The tree was shipped down with pulpwood from one of its timber tracts. Myriad lights were displayed, with flashers to produce different colors and alternately illumine the entire tree. The Northern Paper Mills, also of Green Bay, strung colored lights around one of its main buildings.

3 FEATURES of our "TOP FELTS for BOARD MACHINES"

A Trial Felt for Your Machines Will Prove These Facts.

THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.

TANKS THAT LAST



Acid tank at Nekoosa-Edwards Paper Company, Pt. Edwards, Wis.

Kalamazoo tanks are made of best obtainable tank woods, built right, guaranteed tight.

Sixty years experience building Blow Pits, Acid Tanks, Stuff Chests, Agitators, etc., for the Paper Trade.

Ask about our new Tile Tanks for stock or bleach.

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.

West Virginia Pulp and Paper Company

Manufacturers of

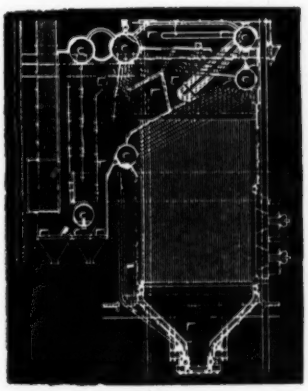
SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

280 Park Ave. New York — 35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.



BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 27, 1930

SUMMARY

Cigarette paper .....33 bls., 410 cs.
Wall paper .....110 bls.,25 cs.
Paper hangings .....81 bls., 10 cs.
News print .....1653 rolls, 49 bls.
Printing paper .....256 rolls, 25 cs.
Wrapping paper .....600 bls., 10 cs.
Packing paper .....16 bls.
Parchment paper .....23 bls., 5 cs.
Filter masse .....19 bls.
Drawing paper .....17 cs.
Tissue paper .....11 cs.
Metal coated paper .....63 cs.
Baryta coated paper .....51 cs.
Surface coated paper .....26 cs.
Coated paper .....3 cs.
Gold coated paper .....4 cs.
Aluminum paper .....2 cs.
Declacomania paper .....11 cs.
Colored paper .....16 cs.
Writing paper .....3 cs.
Gummed paper .....1 cs.
Cover paper .....2 cs.
Card board .....315 cs.
Paper board .....8 bls.
Miscellaneous paper .....123 rolls, 78 cs.

CIGARETTE PAPER

Max Spiegel & Sons Co., Pr. Wilson, Genoa, 33 bls.
P. J. Schweitzer, Pr. Wilson, Marseilles, 95 cs.
Max Spiegel & Sons Co., A. Ballin, Hamburg, 16 cs.
De Manduit Paper Corp., Vincent, Havre, 96 cs.
Champagne Paper Co., Vincent, Havre, 178 cs.
Standard Products Corp., Paris, Havre, 25 cs.

WALL PAPER

F. J. Emmerich, Britannic, Liverpool, 7 bls.
Bendix Paper Co., A. Ballin, Hamburg, 5 cs.
F. A. Binder, A. Ballin, Hamburg, 6 bls.
Irving Trust Co., A. Billin, Hamburg, 4 cs.
F. I. Emmerich, A. Ballin, Hamburg, 6 bls.
J. E. Bernard & Co., Este, Bremen, 10 cs.
F. J. Emmerich, Paris, Havre, 1 ble.
A. C. Dodman Jr., Inc., Olympic, Southampton, 14 bls.
R. F. Downing & Co., Pennland, Antwerp, 3 cs.
R. F. Downing & Co., Antonia, Southampton, 19 bls.
F. J. Emmerich, Pr. Harding, Hamburg, 14 bls.
A. D. Colquhoun, Pr. Harding, Hamburg, 6 bls., 2 cs.
F. A. Binder, Pr. Harding, Hamburg, 37 bls., 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Farmer, London, 21 bls., 10 cs.
Whiting & Patterson Co., Inc., Antonia, Southampton, 13 bls.
A. C. Dodman Jr., Inc., Carinthia, Liverpool, 47 bls.

NEWS PRINT

Perkins Goodwin & Co., A. Ballin, Hamburg, 434 rolls.
M. Douglas & Co., A. Ballin, Hamburg, 86 rolls.
Perkins Goodwin & Co., Este, Bremen, 42 rolls.
J. Madden, Este, Bremen, 325 rolls.
M. Douglas & Co., Bergensfjord, Oslo, 49 bls., 241 rolls.
Stora Kopperberg Corp., Drottningholm, Gothenburg, 315 rolls.
Parsons & Whittemore, Inc., Pr. Harding, Hamburg, 210 rolls.

PRINTING PAPER

Perkins Goodwin & Co., A. Ballin, Hamburg, 210 rolls.
H. Reeve Angel & Co., Inc., American Farmer, London, 1 cs.
P. Puttmann, Pennland, Antwerp, 20 cs.
Hoboken Trust Co., America, Hamburg, 4 cs.
Keuffel & Esser, Pr. Harding, Hamburg, 46 rolls.

WRAPPING PAPER

Southern Pacific Co., Isonzo, Genoa, 600 bls.
Sylvania Industrial Corp., Pennland, Antwerp, 10 cs.

PACKING PAPER

Henschel Naeve Co., Este, Bremen, 16 bls.

PARCHMENT PAPER

Bendix Paper Co., A. Ballin, Hamburg, 5 cs.
Walker Goulard Plehn Co., A. Ballin, Hamburg, 23 bls.

FILTER MASSE

A. Giese & Son, A. Ballin, Hamburg, 19 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Farmer, London, 3 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Farmer, London, 1 cs.
Keuffel & Esser, Antonia, Southampton, 1 cs.
Keuffel & Esser, Pr. Harding, Hamburg, 15 cs.

TISSUE PAPER

F. C. Strype, Corinthia, Liverpool, 9 cs.
B. F. Drakenfeld & Co., Carinthia, Liverpool, 2 cs.

METAL COATED PAPER

K. Pauli Co., A. Ballin, Hamburg, 34 cs.
H. Hawkins & Co., A. Ballin, Hamburg, 1 cs.
Globe Shipping Co., Este, Bremen, 28 cs.

BARYTA COATED PAPER

Globe Shipping Co., Bremen, Bremen, 1 cs.
Globe Shipping Co., Este, Bremen, 50 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Pennland, Antwerp, 3 cs.
P. Puttman, Pennland, Antwerp, 10 cs.
Gevaert Co., of America, Pennland, Antwerp, 12 cs.
Schenckers, Inc., Pr. Harding, Hamburg, 1 cs.

COATED PAPER

W. A. Foster & Co., Olympic, Southampton, 3 cs.

GOLD COATED PAPER

F. Murray Hill Co., Este, Bremen, 4 cs.

ALUMINUM PAPER

Keller Dorian Paper Co., Este, Bremen, 2 cs.

DECALCOMANIA PAPER

C. W. Sellers, Bremen, Bremen, 6 cs.
L. A. Consmiller, Bremen, Bremen, 5 cs.

COLORED PAPER

S. Gilbert, Bremen, Bremen, 2 cs.
F. C. Gerlach, Este, Bremen, 10 cs.
Phoenix Shipping Co., Este, Bremen, 1 cs.
S. Gilbert, Este, Bremen, 3 cs.

WRITING PAPER

Coenca Morrison Co., Paris, Havre, 2 cs.
Japan Paper Co., Paris, Havre, 1 cs.

GUMMED PAPER

Rohner Gehrig Co., A. Ballin, Hamburg, 1 cs.

COVER PAPER

International F'd'g Co., A. Ballin, Hamburg, 2 cs.

CARD BOARD

American Express Co., A. Ballin, Hamburg, 315 cs.

PAPER BOARD

Colmar Paper Corp., Pennland, Antwerp, 8 bls.

MISCELLANEOUS PAPER

E. & J. Burke, Augvald, Marseilles, 4 cs.
Keller Dorian Paper Co., Pr. Wilson, Marseilles, 32 cs.
Saybusch Paper Manfg. Co., A. Ballin, Hamburg, 4 cs.
Keller Dorian Paper Co., Paris, Havre, 22 cs.
Standard Products Corp., Paris Havre, 12 cs.
T. N. Fairbanks, Antonia, Southampton, 4 cs.
The Borregaard Co., Inc., Drottningholm, Gothenburg, 123 rolls.

RAGS, BAGGINGS, ETC.

Banco Com'l Italiane Trust Co., Augvald, Savona, 437 bls. bagging.
Chemical Bank & Trust Co., Augvald, Barcelona, 71 bls. rags
Irving Trust Co., Augvald, Barcelona, 62 bls. bagging.
Rockwell & Co., J. Cartier, Havre, 76 bls. rags.
V. Galaup, J. Cartier, Havre, 28 bls. new cuttings.
Guaranty Trust Co., J. Cartier, Havre, 25 bls. bagging; 134 bls. old cottons.
E. J. Keller Co., Inc., J. Cartier, ——, 104 bls, rags.
G. W. Millar Co., Vincent, Dunkirk, 51 bls. thread waste.
Chemical Bank & Trust Co., Vincent, Dunkirk, 93 bls. flax waste
I. J. Gavin, Este, Bremen, 2 bls. rags.
Baring Bros. & Co., American Farmer, London, 66 bls. rags.
Chase National Bank, California, Glasgow, 35 bls. paper stock.
C. Nelson, California, Glasgow, 44 bls. rags.
Brown Bros. & Co., California, Glasgow, 38 bls. rags.
Rockwell & Co., Antonia, Southampton, 55 bls. rags.
E. Butterworth & Co., Inc., Exchange, Genoa, 40 bls. bagging.
Banco Com'l Italiane Trust Co., Exchange, Genoa, 77 bls. bagging.
Banco Com'l Italiane Trust Co., Exilona, Genoa, 102 bls. bagging.
E. Butterworth & Co., Inc., Exilona, Genoa, 210 bls. bagging.
Amtorg Trading Co., Pr. Harding, Hamburg, 349 bls. rags.

OLD ROPE

Irving Trust Co., A. Ballin, Hamburg, 36 coils.
Baring Bros. & Co., American Farmer, London, 70 coils.
International Purchasing Co., Exilona, Genoa, 145 coils.
A. Pollock & Co., Lehigh, Leith, 54 coils.
W. Steck & Co., Pr. Harding, Hamburg, 55 coils.

CASEIN

G. Doherty, Este, Bremen, 40 cases.

CHINA CLAY

L. A. Salomon & Bro., Carinthia, Liverpool, 360 bags.

WOOD PULP

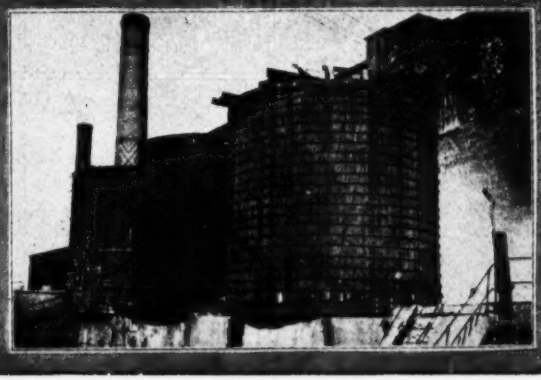
Guaranty Trust Co., A. Ballin, Hamburg, 254 bls. sulphite, 51 tons.
National City Bank, A. Ballin, Hamburg, 304 bls. sulphite, 61 tons.
Castle & Overton, Inc., A. Ballin, Hamburg, 957 bls. wood pulp, 182 tons.
Chemical Bank & Trust Co., Tonsbergfjord, Oslo, 1800 bls. sulphite.
Atterbury Bros., Inc., Tonsbergfjord, Oslo, 600 bls. sulphite.
J. Anderson & Co., Tonsbergfjord, Oslo, 2773 bls. sulphite.
Simonson Bros., Inc., Bergensfjord, Eydehavn, 1250 bls. mechanical pulp.
E. M. Sergeant & Co., Bergensfjord, Oslo, 300 bls. chemical pulp.
Irving Trust Co., Bergensgford, Oslo, 150 bls. chemical pulp.
M. Gottesman & Co., Inc., Drottningholm, Gothenburg, 900 bls. sulphite.
Johanson Wales & Sparre, Inc., Drottningholm, Gothenburg, 2000 bls. sulphate; 449 bls, kraft soda pulp.
Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 1240 bls. sulphate.

(Continued on page 62)

The Advantages of WOOD TANKS

They are not corrodible and are ideal for acid storage, alum solution, tanks, etc. They are used where steel cannot be used and usually are preferred to steel where either will do. Wood tanks require little upkeep, are painted only for appearance and for most purposes are the most economical in the long run.
The illustration shown above is a Battery of Acid Tanks at the St. Regis Co. Mill at Deferiet, N. Y.

The HAUSER-STANDER TANK CO.
Cincinnati, Ohio



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SODA ASH
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Liquid Chlorine
Contract or Spot Delivery
In tank cars and multiple unit cars.
Write for Prices

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
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Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
(Incorporated)
75 East 45th Street, New York City
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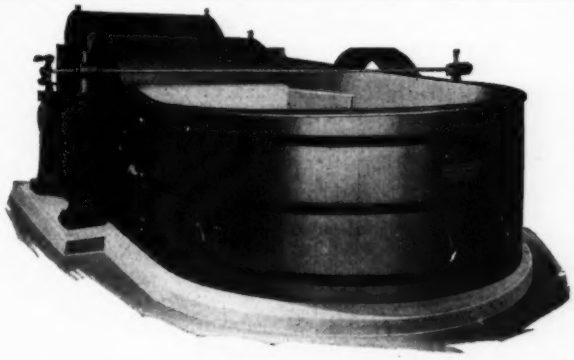

Putting Production into *High Gear*

In scores of paper mills whose annual schedules total millions of tons, Dayton High Speed Beaters are famous for their power, endurance and performance. A heavier furnish—faster beating—less jordaning—less power required—these proven features will put your production in high gear, too. Shown above: Dayton High Speed Beater with cypress tub, 61" dia. by 40" face. Nine of these recently went into a prominent mill, because Dayton specializes on the right beater for the particular task at hand. Years of technical experience—knowledge of paper making—prestige of serving the world's largest mills—these are at your command when you consult this organization.

THE DAYTON BEATER & HOIST CO., DAYTON, OHIO

Eastern Representatives
Mansfield, Bolton & Kent
501 Fifth Ave., New York City

Western Representative
F. H. Godfrey
415 Lenora St., Seattle, Wash.

DAYTON
High Speed Beaters

Imports of Paper and Paper Stock

(*Continued from page 60*)

Perkins Goodwin & Co., Drottningholm, Gothenburg, 127 bls. sulphite; 103 bls. sulphate.

E. M. Sergeant & Co., Drottningholm, Gothenburg, 220 bls. sulphite; 299 bls. kraft soda pulp.

Russell McCandless, Drottningholm, Gothenburg, 600 bls. unbleached sulphite.

Price & Pierce, Ltd., Drottningholm, Gothenburg, 250 bls. dry pulp.

Harriman Bros. & Co., Kifuku Maru, Hamburg, 225 bls. wood pulp, 46 tons; 200 bls. sulphite, 30 tons.

WOOD FLOUR

State Chemical Co., Saco, Rotterdam, 572 bags, 34420 kilos.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 27, 1930

Union Trust Co., Anaconda, Antwerp, 20 bls. rags.

Russell McCandless, Hjelmaren, Stockholm, 900 bls. unbleached sulphite.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 27, 1930

Darmstadt Scott & Courtney, Anaconda, Antwerp, 36 bls. bagging.

New York Trust Co., Anaconda, Antwerp, 57 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 27, 1930

Canal Bank & Trust Co., Anna C, Fiume, 41 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 27, 1930

International Trust Co., Augvald, Marseilles, 60 coils old rope.

J. Andersen & Co., Anna C, Trieste, 260 bls. wood pulp.

——, J. Cartier, Dunkirk, 599 bls. rags.

——, J. Cartier, Dunkirk, 177 bls. bagging.

Darmstadt Scott & Courtney, Vincent, Dunkirk, 135 bls. rags.

E. H. Bailey & Co., Vincent, Havre, 2 cs. drawing paper.

Bank of New York, Exilona, Alexandria, 84 bls. rags.

Baring Bros. & Co., Lehigh, Leith, 27 bls. rags.

——, Lehigh, Dundee, 18 bls. paper stock.

E. J. Keller Co., Inc., West Arrow, ——, 173 bls. rags.

E. J. Keller Co., Inc., Vincent, ——, 108 bls. flax waste.

E. J. Keller Co., Inc., J. Cartier, ——, 362 bls. rags.

BOSTON IMPORTS

WEEK ENDING DECEMBER 27, 1930

——, Lehigh, Dundee, 113 bls. paper stock.

Unity Paper Mills Settlement

POTSDAM, N. Y., December 27, 1930.—Announcement has been made that the Unity Paper Mills has settled claims of its creditors on a ten per cent basis following a recent agreement. During the past week an order approved by Federal Judge Frederick H. Bryant was filed in United States Court showing the terms of the settlement. The order was signed by the authorities upon request of F. L. Curley, attorney for the Unity Company, and was drawn up to the satisfaction of the major portion of the creditors, both in number and amount of claims. The document showed that 58 out of 63 creditors claiming a total of $109,803 had agreed to the terms of the settlement. The entire claims of unsecured creditors are placed at $117,554. Officials of the firm were also present at the hearing held in Utica where the approval of the court was asked.

A statement made by the federal court authorities showed that $25,000 has already been deposited in the National Bank at Potsdam to the credit of Judge Bryant which is subject to claims of creditors with the sanction of Bernard Wade, receiver who is now supervising manufacturing activities at the mills. Fees and other expenses will also be charged to the funds. Since encountering financial difficulties about a year ago the company has produced book paper in a profitable manner and plans are now under way for a complete reorganization.

As a move towards the reorganization of the firm it was announced this week that articles incorporating the Unity Paper Corporation had been filed with the Secretary of State at Albany listing the capital stock at $100,000. The incorporation papers stated that the company would manufacture paper novelties of all kinds. The board of directors includes Bernard Wade, Robert H. Burns and Harry M. Ingram, all of Potsdam.

Aaronson Brothers Move

Aaronson Brothers have moved to 32 Bleecker street where they are occupying the entire building, a six story structure with basement having a total floor area of 70,000 square feet. This building was formerly occupied by Henry Lindenmeyr & Sons for about a quarter of a century.

From a humble beginning six years ago, Aaronson Brothers have made such remarkable progress that today they are considered the leading paper merchants specializing in high grade enamel seconds. They attribute their success to being consistently different from all other "Seconds Houses."

To serve the trade, Aaronson Brothers are equipped with 9,000 cases of enamel paper, four automobile delivery trucks, five telephone trunk lines and unlimited desire to please everybody.

Winfred W. Crosier Injured by Thief

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 30, 1930—Winfred W. Crosier, superintendent of the American Pad and Paper Company narrowly escaped death at the hands of a thief Christmas eve. near his home. As it was, he received several scalp wounds but fortunately escaped serious injury.

Mr. Crosier was looking out of his living room window about 8:30 when he saw a man go to the rear of the home of his neighbor, James Lees. Thinking the man was about to deliver some parcel, and knowing the Lees family to be away, he went out, tried to locate the man and the next thing he knew he was being beaten over the head with an iron pinchbar of the type used to open packing cases.

Mr. Crosier was able to beat off his assailant who fled towards Pearl street. The police were called but no trace could be found of the thief, who evidently intended to jimmy his way into the Lees' home.

May Close Sudbury Offices

F. Woods, manager of the Abitibi Power and Paper Company office at Sudbury, declined to confirm rumors this week that the offices in that town would be closed within a few weeks' time. Although skeptical, Mr. Woods stated that any authority for such action would probably be forthcoming some time in January. The Abitibi mill at Sturgeon Falls is almost entirely closed down, and it is expected by former employees that the plant will not re-open to conduct former operations for years. Mill employees at Sturgeon Falls are now taking advantage of the Government's unemployment relief fund in that area. Mr. Woods emphasized that Abitibi will not "take out a stick" in the Sturgeon Falls, Espanola or Port Arthur sections this winter. Large stocks of cut logs are now in the dumps at the respective mills.

To Consolidate Gulf State Plants at Tuscaloosa

TUSCALOOSA, Ala., December 30, 1930—H. D. Warner, secretary-treasurer of the Gulf States Paper Corporation, has announced that the firm would transfer its paper and pulp mill from Braithwaite, La., and its bag factory from New Orleans here.

Mr. Warner said the consolidation would increase the output of the local mill by 50 per cent and increase its payroll a similar amount.

Removal of the machinery will begin in January, Mr. Warner said, and will take approximately four months. No expansion of the buildings here will be necessary, he said.

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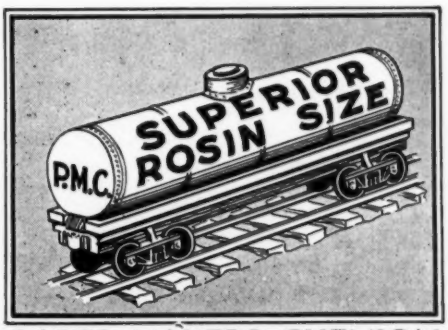

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New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
Wednesday, December 31, 1930

While trading in the local paper market continues light, now that the holidays' are practically ended increased activity is confidently anticipated, in most quarters. Sales forces of the leading paper organizations are busily formulating plans for a strenuous campaign for orders and are generally optimistic over the outlook. Prices are holding up fairly well.

Some improvement in the news print market is expected in the near future. According to a forecast survey conducted by the Bureau of Advertising, 122 agencies figure on more newspaper advertising during the coming year; 18 on a smaller volume; 66 on a volume equal to 1930 and 14 are unable to form an estimate. Of 139 replies received from advertisers, 51 plan to increase their appropriations and 51 indicate their appropriations will be the same as in 1930.

Production of paper board has been curtailed during the past two weeks and demand for the various grades has declined slightly. The price situation remains unchanged. The fine paper market has been marking time awaiting the turn of the year. Tissues have been moving in satisfactory volume. The coarse paper market has been steadier and the movement of wrapping paper into consumption has been well up to average.

Mechanical Pulp

Due to the holidays, the ground wood market was only moderately active during the past week. However, the industry is in a sound position and offerings of both domestic and foreign mechanical pulp are not excessive. The contract movement is mainly seasonal. Prices are generally holding to previously quoted levels and there is little talk of concessions around.

Chemical Pulp

The position of the chemical pulp market is practically unchanged. While demand for the various grades is quiet at present, trading should become more active with the close of the Yuletide holiday period. Contract shipments are going forward to the paper mills in fairly satisfactory volume for the time of year. No further price changes have been reported.

Old Rope and Bagging

Trading in the old rope market was mostly routine. Prices are rather easy at present. Foreign old manila rope is now quoted at from $2.60 to $2.75, while domestic old manila rope is selling at from $2.80 to $3.00. The bagging market is exhibiting a strong undertone. Foreign gunny is now offered at from $1.65 to $1.80 and domestic gunny is quoted at practically the same level.

Rags

Little paper mill interest is being displayed in the domestic rag market at present, although demand should improve after the close of the inventory period. Cotton grades are only in moderate request. Roofing grades and mixed rags are decidedly quiet. The imported rag market is practically unchanged. Quotations on both the domestic and also on the imported grades are nominal.

Waste Paper

The paper stock market is irregular. While the better grades are fairly steady, the lower grades are in an unsatisfactory position. Dealers handling mixed paper are particularly discouraged and the action of East Side collectors and packers, who agreed on December 22 to destroy all their excess supply for two weeks, is significant.

Twine

Demand for the various grades of twine has quieted down considerably, as generally happens at the end of the holiday period. However, the outlook for the future is fairly encouraging. Prices are generally holding to schedule and while slight revisions are anticipated by some observers in the near future, no radical changes are looked for.

ANALYSIS OF PAPER INDUSTRY

(Continued from page 17)

The Optimist is handing out
So much of Faith and Cheer,
He's bound to be successful—
Because he knows no fear.

But what about the Pessimist
Who's full of hard-luck tales?
He's always looking for the worst—
And that is why he fails.

Because in this old world of ours
t's well to keep in mind—
That what we look for and expect
Is what we're sure to find.

So Pessimism never reads
SUCCESS for you or me;
And OPTIMISM never leads
To failure—no siree!

General commodity prices have deterred many from buying. It seems to me a careful study of present wholesale prices—compared with pre-war prices and current costs—would be most convincing of the safety of again getting the buying habit, which is one activity that will improve general business.

I am not entirely free from pessimism—but I call that state of mind "conservatism." I am not over optimistic—so I also call that state of mind "conservatism."

From my pessimism I have eliminated "fear," and substituted "courage." To my optimism I have added "new hope and strength."

Don't expect too much too soon, but plan ahead for a five year period. Look back over any previous five-year period and you will get new hope for the future; likewise if you now look ahead five years you can visualize another period of prosperity, and that picture will develop and strengthen the courage needed to meet the present conditions.

The future is going to be great! !

James Malone Dead

CHICAGO, Ill., December 27, 1930—James Malone, of the McNulty Paper and Twine Corporation, 535 West Chicago avenue, Chicago, suffered a cerebral hemorrhage about three weeks ago and died Wednesday, December 17, at St. Anthony's Hospital, at the age of 33 years. Mr. Malone was an associate of the company approximately five years, coming from Toronto, Canada.

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
Wednesday, December 31, 1930.

BLANC FIXE.—Conditions in the blanc fixe industry are fairly satisfactory. Demand for both the pulp and the powder is seasonal. Prices remain unchanged. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market was moderately active during the past week. Shipments against contract are going forward in seasonal volume. Prices are generally holding to schedule. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—Demand for casein was rather light. Prices remain unchanged. Domestic standard ground is quoted at 9½ cents and finely ground at 12 cents per pound. Argentine standard ground is selling at 11 cents and finely ground at 12 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market was fairly active. Supplies are moving into consumption at a normal pace. Prices remain unchanged. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness continues to prevail in the china clay market. The contract movement is well up to average. Prices are holding to schedule. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Further weaknesses developed in the chlorine market. Demand during the week was mostly seasonal. Due to keen competition for orders, prices again declined. Chlorine is now quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—No radical changes were reported in the rosin market. The grades of gum rosin used in the paper mills are now quoted at from $5.35 to $5.55 per 280 pounds, in barrels, at yards. Wood rosin is still selling at $3.80 per 280 pounds, car load lots, at southern shipping points.

SALT CAKE.—Trading in the salt cake market was rather quiet, due mainly to seasonal causes. Contract shipments are moving at a normal pace. Salt cake is quoted at from $16 to $17; German salt cake at from $15.50 to $16; and chrome salt cake at from $15 to $16 per ton, in bulk, at works.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contracts for 1931 delivery are being booked in good volume. Prices are generally holding to schedule. Contract shipments on soda ash, in car lots, at works, are as follows: in bulk, $1.15; in bags, $1.32; and in barrels, $1.55 per 100 pounds.

STARCH.—Offerings of starch are sufficient to take care of current requirements. Supplies are moving to the paper mills in fair volume. Prices have declined slightly. Special paper making starch is now quoted at $3.27 per 100 pounds, in bags; and at $3.54, in barrels, at works.

SULPHATE OF ALUMINA. — Some improvement was noticed in the sulphate of alumina market. Demand was more persistent than of late. Prices are holding to schedule. Commercial grades are quoted at from $1.40 to $1.55, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues in a strong position. Sulphur is quoted at $18 per long ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market was along routine lines. Prices are generally holding to previously quoted levels. Domestic talc is selling at from $16 to $18 per ton, in bulk; while imported talc is offered at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	6.75	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	6.75	@11.00
Book, Cased—		
S. & S. C.	5.75	@ —
M. F.	5.50	@ —
Coated and Enamel	7.00	@10.50
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.65	@ .67½
Anti-Tarnish M G only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .57½
Kraft	.65	@ .70
Manila	.55	@ .57½
Kraft		
No. 1 Domestic	5.00	@ 6.00
No. 2 Domestic	3.00	@ 3.75
Southern	3.00	@ 3.75
Imported	6.00	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middles	4.00	@ 5.00
Glassine		
Bleached basis 25 lbs., No. 1	.09¾	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs. (Delivered New York)	.11¾	@ —
News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	32.50	@35.00
Straw	40.00	@45.00
Chip	30.00	@32.00
Binders' Boards	65.00	@70.00
Standard Test Jute Liner	40.00	@42.00
Sgl. Mla. Tl. Chip (F. o. b. Mill)	42.50	@ —
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	28.00	@32.00
Dry	30.00	@34.00
(F. o. b. Mill)		
No. 1 Domestic	28.00	@34.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.00	@ 4.25
Easy Bleaching	2.60	@ 2.80
No. 1 strong unbleached	2.00	@ 2.65
Mitscherlich unbleached	2.15	@ 2.70
No. 2 strong unbleached	1.95	@ 2.05
No. 1 Kraft	1.50	@ 1.75
No. 2 Kraft	1.40	@ 1.55
Sulphate		
Bleached	3.40	@ 3.85
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	2.65	@ 4.75
Easy Bleaching Sulphite	2.55	@ 2.75
News Sulphite	2.35	@ 2.60
Mitscherlich	2.50	@ 3.25
Kraft (Domestic)	2.10	@ 2.75
Soda Bleached	2.75	@ 2.90

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	8.00	@ 8.50
New White, No. 2	7.00	@ 7.25
Silesias No. 1	6.50	@ 7.00
New Unbleached	8.25	@ 9.00
New Blue Prints	5.25	@ 5.50
New Soft Blacks	4.00	@ 4.50
Blue Overall	6.25	@ 6.50
Washables	4.25	@ 4.75
Fancy	4.75	@ 5.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	7.50	@ 8.00
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.50	@ 4.00
New Mixed Blacks	3.25	@ 3.50
Old Rags		
White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.25	@ 1.30
No. 1	1.25	@ 1.30
No. 2	.90	@ 1.00
No. 3	.70	@ .80
No. 4	.65	@ .70
No. 5A	.50	@ .60

Foreign Rags

New Rags

New Dark Cuttings	2.30	@ 2.50
New Mixed Cuttings	2.25	@ 2.75
New Light Silesias	6.25	@ 6.50
Light Flannelettes	6.50	@ 7.00
Unbleached Cuttings	8.25	@ 8.75
New White Cuttings	7.50	@ 8.00
New Light Oxfords	6.00	@ 6.50
New Light Prints	4.75	@ 5.25
Old Rags		
No. 1 White Linens	7.50	@ 8.00
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 5.75
No. 2 White Cotton	4.50	@ 5.00
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.70	@ 1.80
Extra Light Prints	2.75	@ 3.00
Old Light Prints	2.15	@ 2.40
Med. Light Prints	1.65	@ 1.75
Dutch Blue Cottons	2.00	@ 2.10
French Blue Linens	2.65	@ 2.75
German Blue Linens	2.25	@ 2.40
German Blue Cottons	1.85	@ 1.90
Checks and Blues	1.85	@ 1.90
Lindsay Garments	1.20	@ 1.30
Dark Cottons	1.00	@ 1.10
Old Shopperies	.95	@ 1.00
New Shopperies	.95	@ 1.05
French Blues	1.90	@ 2.00

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.65	@ 1.80
Domestic	1.65	@ 1.80
Wool Tares, light	1.30	@ 1.40
Wool Tares, heavy	1.35	@ 1.40
Bright Bagging	1.30	@ 1.35
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00
New Burlap Cut	2.25	@ 2.50
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.80	@ 2.90
Hard White, No. 2	2.30	@ 2.40
Soft, white, No. 1	2.50	@ 2.60
White envelope cuttings	2.95	@ 3.05
Flat Stock—		
Stitchless	.95	@ 1.05
Overissue Mag.	.95	@ 1.05
Solid Flat Book	.80	@ .95
Crumpled No. 1	.65	@ .75
Solid Book Ledger	1.90	@ 2.00
Ledger Stock	.80	@ .90
New B. B. Chips	.25	@ .30
Manilas—		
New Env. Cut.	2.10	@ 2.25
New Cuttings	1.50	1.65
Extra No. 1 old	1.25	@ 1.35
Print	.50	@ .60
Bogus Wrapper	.50	@ .60
Container	.30	@ .35
Old Kraft Machine—		
Compressed bales	1.30	@ 1.40
News—		
No. 1 White News	1.70	@ 1.80
Strictly Overissue	.45	@ .50
Strictly Folded	.35	@ .40
No. 1 Mixed Paper	.20	@ .25
Common Paper	Nominal	

WOOD PULP
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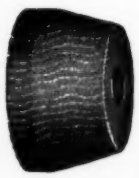

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New York City

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.22	@	.24
No. 2	.21	@	.22
No. 3	.19	@	.20
B. C., 18 basis	.32	@	.34
A. Italian, 18 basis	.38	@	.39
Finished Jute—			
Dark 18 basis	.20½	@	.21
Light 18 basis	.22½	@	—
Jute Wrappings, 3-6 Ply—			
No. 1	.14¼	@	—
No. 2	.13¾	@	—
Tube Rope—			
4-ply and larger	.10¼	@	—
Fine Tube Rope—			
4-ply	.12¾	@	—
3-ply	.13¾	@	—
2-ply	.14¾	@	—
Paper Makers Twine			
Balls	.08¾	@	—
Box Twine, 2-3 ply	.09	@	.10
Jute Rope	.11	@	.12
Amer. Hemp, 6	.29	@	.31
Java Sisal			
No. 1 Basis	.12	@	—
No. 2 Basis	.11¾	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Twine	.22½	@	.24½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cut			
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.30	@	.35
No. 2 Mixed	.25	@	.35
Ledger & Writings	.90	@	.95
Solid Books	.90	@	.95
Blanks	1.60	@	1.65
Krafts	1.30	@	1.40
New Kraft Cuts	1.50	@	1.70
Manila Env. Cuts	1.65	@	1.70
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.45	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03½	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03½	@	.04
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	32.50	@	35.00
Chip Board	30.00	@	32.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.09	@	.09½
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.08½	@	.09
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03¼
Fancy	.05	@	.05½
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Domestic Rags (Old)

White No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	6.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.25	@	1.30
Repacked	.80	@	.90

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.15
No. 2 Books, light	.90	@	.95
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.35	@	1.40
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.45	@	.50
Old Newspaper	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila. Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.06
No. 2 Kraft	.03¾	@	.05
(Less car-freight to Boston)			
Southern Kraft	.03¾	@	.04¼
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Creasing)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White Patent Coated News Board Bender, No. 1	60.00	@	75.00
Single White, Patent Coated News Board Bender No. 2	55.00	@	65.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	67.50	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	—	@	2.40
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	—	@	1.75
No. 1 Books, Heavy	.75	@	.80
No. 1 Books, Light	.85	@	—
Crumpled Stitchless Book Stock	—	@	.70
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	—	@	1.20
Manila	—	@	.90
No. 1 Mixed Paper	—	@	.15
Overissue News	—	@	.30
Old Newspapers	.37½	@	.40
Box Board, Chip	.50	@	.55
Corrugated Boxes	.35	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.85
Domestic	—	@	1.60
Manila Rope—			
Foreign	—	@	2.75
Domestic	—	@	3.00
Transmission Rope	—	@	2.00
Mixed Strings	—	@	.90
Jute Rope	—	@	1.25
Jute Carpet Threads	1.00	@	1.10
No. 1 Scrap Burlap	—	@	1.35
Scrap Sisal	—	@	1.50
Scrap Sisal for shredding	—	@	1.75
Wool Tares, heavy	—	@	1.40
New Burlap Cutting	1.75	@	2.00
Australian Pouches	—	@	2.50
Heavy Baling Bagging	2.00	@	2.10
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.07½	@	.08
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06½
New Unbleached	—	@	.09¼
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	3.65	@	4.00
Roofing Stock—			
No. 1	.90	@	.95
No. 2	—	@	.75
No. 3	—	@	.65
No. 4	—	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.70	@	.85
New No. 1 white shirt cuttings	7.50	@	8.00
Dutch Blues	—	@	1.80
Lace Curtains	4.00	@	4.25
New Checks & Blues	4.25	@	4.60
Old Fustians	1.65	@	1.65
Old Linsey Garments	.90	@	1.00

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.09¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.09½	@	.10¾
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	4.00	@	5.75
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 4 S. C. (carloads)	6.25	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	70.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writ-			
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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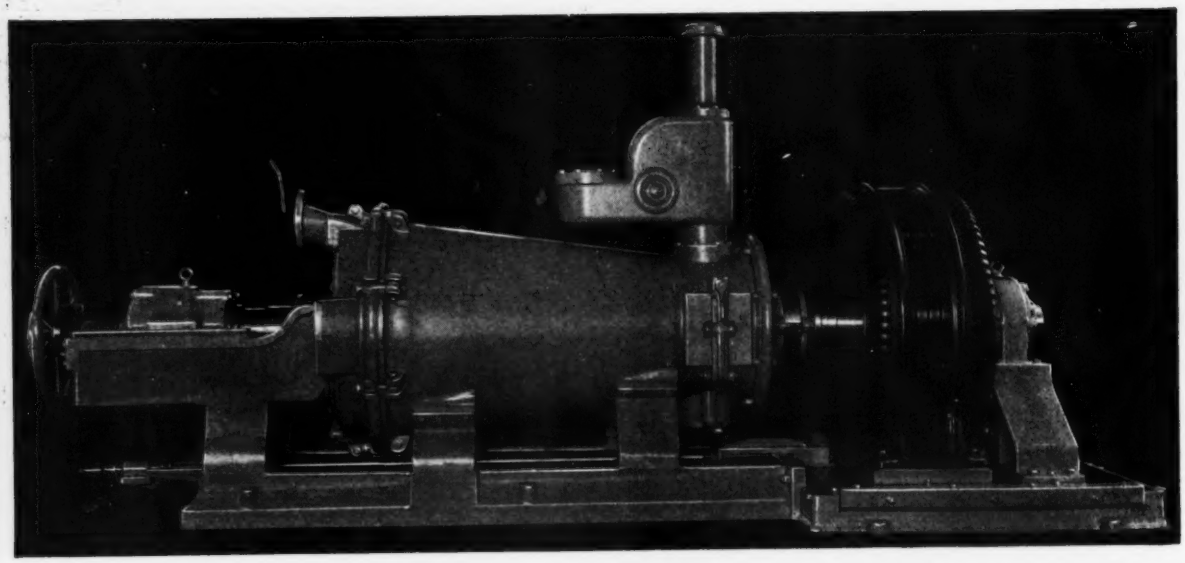

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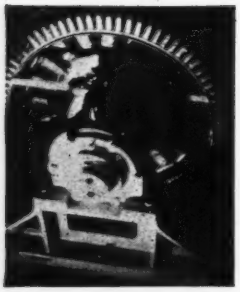

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